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Abstract of National Mid Term CME 2011, Kolkata

Review of result of reconstructive surgeries in claw hand in leprosy cured patient

Vinod Prasad,
Assistant Professor, PMR Department, Patna Medical College

OBJECTIVE: Leprosy, though claimed to be cured, is yet prevalent in some parts of country, especially Bihar, Jharkhand. Cases do come with deformities of hands and feet, though leprosy disease itself cured. To improve functional result and lead a socially integrated and respectable life, we operated such cases of claw hand deformities.

MATERIALS & METHODS: We select the cases reporting to PMR OPD Deptt. Patna Medical College & hospital. Cases were referred from Primary Health Centre, District Hospitals and Skin department. We selected only those cases who have taken full course of MDT and who were otherwise fit for tendon transfer.

After a good period of pre-operative exercise to strengthen F.D.S of middle/ ring fingers, we operated generally under regional anaesthesia and esmarch tourniquet. We transferred flexor digitorum sublimis of middle finger to flexor pulleys of all the four fingers for claw hand. For opponensplasty, we transferred FDS of ring finger to exert effect of abduction and opposition. Postoperatively the hand was immobilised in P.O.P cast for three weeks. After that stiches removed, exercise started and fingers were kept in cylinder cast for further 2-3 weeks.

RESULTS: In most case unilateral upper limb was involved (78%). Least no (2.6%) was involved of both upper and lower limb. In upper limb, total claw i.e.(affection of ulnar and median nerves) was 7.6%. Postoperatively at the end of 24 months result were good (35%), workable (32%), excellent (12.6%), and poor (11.3%). Criteria were as suggested by DIFT. Commonest complication was flexion of PIP joint of finger. For this we used finger cylinder cast/ orthoses for longer period.

CONCLUSION: These neglected patients of post-Hansen's claw hand deformity certainly need care at tertiary treatment level. Apart from cosmetic look, ADL activities and functional gain has been achieved markedly. This helps patient attend and participated in various social activities.

Management of a case of spinal cord injury with flexor spasm and spasticity: what is appropriate technology?

*K Wangjam**

Introduction: Spinal cord injury is associated with various forms of hypertonia, including flexor spasm and spasticity. Hypertonia has to be treated if it interferes with the treatment programme, function or causes complications. Out of several methods of intervention, it is important to decide what is the most appropriate for a case.

Case: Fifteen years old male who suffered from # dislocation of C5 over C6 with incomplete C5 tetraplegia following injury due to fall from height on 18.10.10 is presented to illustrate the problem. He belonged to rural background and low economic status.

He was treated elsewhere before attending PMR on 10.01.11. He had severe spasticity and flexor spasm affecting both lower limbs (grade III to IV). In addition to the above, he had 3 major maltreatment related problems: (i) Grade VI sacral and left trochanteric sore. (ii) Penoscortal fistula. (iii) Effects of decompensation.

Results: Oral baclofen was tried for 3 weeks with incremental doses from 15 mg daily to 45 mg daily in divided doses. On the failure of this pharmacological intervention, injection phenol aqueous solution for motor point block and nerve block was performed on several sessions for different muscles and nerves. Video to record the change from pre-injection grade IV to grade I postinjection will demonstrate the effect. A new technique of injection of iliopsoas will be shown.

Discussion: Surgical intervention options are selective dorsal rhizotomy (SDR), peripheral orthopaldic procedures, like single event multiple level (SEML) type of surgery or/and neurectomies were not considered as the neurological status was evolving. Current status of these procedures reviewed.

Interventions which have temporary or reversible effect will be most suited for the case. Of which, intrathecal baclofen (ITB) would have been most appropriate. Cost

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Conclusion: Selection of method of reducing hypertonia in SCI is not enough; most important is the appropriate technology for a case.

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* Professor & Head. PMR.
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Integrated and challenging rehabilitation improves span and quality of life in SCI

M M Ghatak
(Founder & In-charge Medical Rehab Center, Kolkata)

Rehab not only improves quality of life, but also gives years to the life in SCI. Among 526 cases of SCI patients, rehabilitated as indoor basis (2 months to 14 months stay) in medical rehab centre, Kolkata a classical case report is given here.

Mr. X , a case of D12 # with complete paraplagia, after pedicle screw fixation was admitted for rehab with very poor GC , emaciated stature, blackish and shrunken eyes, severe UTI and fever,catheterised bladder, big sacral stage III pressure sore, poor nutritional background , constipated bowel and complete motor and sensory loss below the level of injury. The entire ailment compounded with mental depression.

Rehab started with tackling the severe medical illness. Medical experts, PMR and subspecialities (PT, OT, psychotherapist, nutritionist) were involved. Superspeciality teams consisted of pressure sore team (plastic surgeon, dressor attendant, sister and nutritionist), physical rehab team (PMR, PT, OT, orthotist) , Psycho Rehab team (PMR, psychotherapist, psychiatrist, attendant, sister), uro rehab team (urologist, RMO, sister, PMR), ortho team (orthopaedician, RMO, PMR, dressure) started working

He passed through series of problems as - H.O left hip – surgically removed for functional sitting, bedsore after recognisable healing – flap and skin grafting done, mild DVT – treated with LMWX and warfarin which induced increase PT and INR and bleeding, managed with FFP and conservatives. Mental depression led him to attempting suicide and psycho rehab and medicine actively dealt the situation, after urodynamic study CIC started and practised successfully, muscular bulk and physical strength and fitness came after control of all medical events and monitoring the nutrition scientifically and eventually. Wheelchair training, transfer techniques etc trained, home modification guidelines and vocational assessment and guidelines supplied to the patient A 13 months challenging rehab management successfully sent the patient at home.

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Closed phenol neurolysis and tibial neurectomy for gastrosoleus spasticity reduction and improvement of ambulation – a cohort study

Javed Anees*, T K Vasudevan**, S Abdul Gafoor***

Objective:- To compare the effects of closed phenol neurolysis and tibial neurectomy in decreasing spasticity and improving ambulation in patients with spastic equinus.

Design:- Cohort study

Setting: - Inpatients admitted in PM&R department, Calicut Medical College, Kerala.

Abstract

Study period: From January1 to July 31.

Method: - Patients with spasticity grade 2 and more were treated with peripheral nerve phenol block after nerve localisation with stimulator and posterior tibial neurectomy. Evaluation included clinical assessment scale of spasticity (modified Ashworth scale – MAS), FIM scale for transfer, Walking index for SCI.

Scoring of MAS and FIM, WISCI done 1 week, 3weeks and 6 weeks, 12 weeks after interventions.

Results: - Both groups showed significant reduction in spasticity and improvement in ambulation; more reduction of spasticity was observed with tibial neurotomy. Final results await the completion of study period.

Conclusion: -Current trend shows more favourable result in reduction of spasticity of tibial neurotomy and final results are being awaited.

*Junior Resident
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A study of effects of home based exercise therapy on spinal mobility, fatigue, quality of life, disease activity and functional capacity in patients suffering from ankylosing spondylitis

Prajna Ranjani M, Sanjay Wadhwa, U Singh, Uma Kumar, R M Pandey***

Objective: To study the effects of home based exercise therapy on spinal mobility, functional capacity, daily activity, level of disease activity, extent of sense of well being, quality of life, fatigue, in patients of ankylosing spondylitis.

Material and Method : A prospective study conducted at PMR department, AIIMS, on 33 consenting patients of Ankylosing spondylitis, who fulfilled Modified New York criteria which included 31 males, 2 females, aged between 16 and 65 years. NAAS set of exercises along with deep breathing exercise was given for a period of 3 months. Compliance chart and tablet count chart were given to the patients. Patients were followed up every 6 weeks. Bath ankylosing spondylitis disease activity index (BASDAI), bath ankylosing spondylitis functional index (BASFI),bath ankylosing spondylitis metrology index (BASMI), bath ankylosing spondylitis global index (BAS-G), multidimentional assessment of fatigue (MAF), Ankylosing spondylitis quality of life (ASQoL) scales were administered to measure disease activity, functional status, spinal mobility, sense of well being, fatigue levels and quality of life in patients before and after exercise therapy.

Results : Statistically significant changes in median value of following parameters were obtained, BASDAI from 4.9 to 3.3 ($p<0.0007$), BASFI 4.4 to 3.4 ($p<0.004$), BASG 6 to 4.5 ($p<0.0005$), MAF 65.5 to 50 ($p<0.0004$), ASQoL 12 to 8 ($p<0.0088$) and no change in BASMI ($p<0.0813$).

Conclusion : Home based exercise therapy improved the sense of well being, quality of life, fatigue levels, and improvement in activities of daily living and reduce disease activity in patients with Ankylosing Spondylitis under study. Not much change in spinal mobility was found.

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** Professor & Head, Dept of Biostatistics, AIIMS

Assessment of total contact casting in diabetic neuropathic foot ulcers

A Basak, T Ahmed, S Mishra, P P Das, A Palit, R N Haldar

OBJECTIVE : To determine the outcome of diabetic neuropathic foot ulcers treated with total contact casting (TCC) in terms of duration to heal and percentage of ulcers healed based on improvement of Wagner's grading.

Abstract

STUDY DESIGN : Prospective Clinical Trial.

SAMPLE SIZE : 30 patients.

PLACE OF STUDY : Department of Physical Medicine & Rehabilitation,IPGME & R,SSKM Hospital,Kolkata.

DURATION OF STUDY :6 months.

INCLUSION CRITERIA : Diabetic neuropathic foot ulcers upto grade 2 of Wagner's classification treated with local dressing, antibiotic, orthosis but with no improvement.

EXCLUSION CRITERIA :

(1) Patients unwilling to give consent.

(2) Active or acute deep infection, sepsis or gangrene.

(3) Patients unable to comply with follow-up visits or wearing precautions.

MATERIALS AND METHODS :

After selection of the patients based on inclusion and exclusion criteria,ulcers were debrided off under aseptic condition and total contact casting was applied.Total contact casting was removed weekly and was done again if necessary for the maximum period of 6 weeks or till healing.Cases were labelled as cast failure when there was no improvement of Wagner's grading in 6 weeks.Main outcome measures were duration to heal and improvement of Wagner's grading.

RESULTS : Twenty patients were males and 10 patients were females; 90% patients (27 patients) responded to total contact casting in 6 weeks which was statistically significant ($p < 0.05$); 10% cases(3 patients) were labelled as cast failure.Among 27 responders, in 20 patients (74.07%) ulcers took an average of 4 weeks to heal completely.In 14.81% patients ulcers healed completely in 6 weeks and in 11.11% patients ulcers healed completely in 2 weeks.Among the responders 66.66% patients had ulcers in forefoot, 22.22% patients had ulcers in midfoot and 11.11% patients had ulcers in hindfoot. Among the cast failure cases 66.66% patients had ulcers in hindfoot.

DISCUSSION :A study on the similar topic has been found in the following reference – J.Coll Physicians Sur Pak. 2008 Nov;18(11):695-8.They found total contact casting as an effective treatment modality for diabetic neuropathic foot ulcers.

CONCLUSION : Total contact casting is an effective treatment modality for neuropathic diabetic foot ulcers with Wagner's grade up to 2.

Effect of phenol neurolysis in the treatment of spasticity:a Calicut experience

Pradeep Kumar Kalathil, T K Vasudevan**, S Abdul Gafoor****

Objective: To assess the decrease in spasticity after phenol neurolysis.

Design: Before – after trial with 6 months follow-up.

Setting: Out paients and in patients attending PMR department at Calicut Medical college, Kerala from January1 to June 30, 2011.

Materials and Methods: Patients with spasticity grade 2 and more were treated with peripheral nerve phenol block after nerve localisation with nerve stimulator. Evaluation included clinical assessment of spasticity (Ashwaorth Scale) and FIM scoring after 1 week, 3 weeks, and 6 weeks and thereafter monthly.

Results: Spasticity decreased after neurolysis . Significant functional improvement was also noted.

Conclusion: Phenol neurolysis is a useful and cost effective treatment for spasticity.

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**Assistant Professor

***Professor and HOD- Department of PM&R, Calicut Medical College

Abstract

Comperative study between the efficacy of facet joint block and ultrasound therapy in L4/L5 facet arthropathy

T Ahmed, A Basak, A Banerjee, S Iswarari, R Pramanik, P Das

STUDY DESIGN: Prospective randomised control study

STUDY PLACE: NRSMC& SSKM, IPGMER

INCUSION CRITERIA:

(i) L_4/L_5 Facet arthropathy who failed 2 weeks conservative treatment

(ii) Clinical symptoms and signs of facet arthropathy

EXCLUSION CRITERIA :

(i) Structural congenital vertebral anomalies
(ii) Associated PIVD/ spondylolisthesis
(iii) Spondylo-arthropathy
(iv) Unable to give consent
(v) Bleeding diatheses
(vi) Contra-indication of facet joint block/ UST

SAMPLE SIZE : 60 patients

MATERIALS and METHODS : Patients with facet arthropathy of L4/ L5 attended in PMR OPD of NRSMCH &SSKM IPGMER who already received 2 weeks of conservative treatment with orthoses, NSAID and exercise. Patients were divided randomly into 2 groups after taking consent from patients. Group A received facet joint block and group B received a course of UST. Follow-up were done on 0, 3weeks, 6 weeks.

ASSESSMENT CRITERIA: VAS, OSWESTRY INDEX (pain, disability)

RESULT ANALYSIS: Using SPSS software

DISCUSSION: Comparison of the reduction of pain and disability between the conservative treatment and the facet joint block group showed that there is statistically significant improvement (p value < 0.05) in those patients treated with facet joint block. UST showed improvement without statistical significance.

CONCLUSION: Facet joint block is definitely helpful in treatment of L4/L5 facet arthropathy.

KEY WORDS: Facet joint arthropathy, UST, Facet joint injection.

Abstract

Comparison of anterior and posterior ankle foot orthoses in foot drop patients by metabolic analysis

*Harleen Uppal, Gita Handa, U Singh, S Wadhwa, S L Yadav, R M Pandey**

OBJECTIVE: This is a preliminary study being conducted to investigate the changes and compare them in terms of metabolic equivalent, VO_2, VCO_2 and gait patterns in foot drop patients with anterior and posterior ankle foot orthoses.

STUDY DESIGN: The subject group comprises 20 unilateral foot drop patients who can walk independently or with a cane, after obtaining clearance from the Ethics Committee. Only patients with a spasticity score of <2 as per the Modified Ashworth Scale are being included in the study. A cross-over study is being conducted. Metabolic analysis and gait analysis of the patients is carried out while wearing anterior and posterior ankle foot orthoses separately using START 2000M portable metabolic analyser system and the Zebris Gait Analysis System respectively. The study also includes a subjective questionnaire after 1 month to ask the patient's preference. The entire study is being conducted in the out patient department of Physical Medicine and Rehabilitation, All India Institute of Medical Sciences.

RESULTS: In 8 patients till now we have seen a decrease in metabolic equivalent in patients wearing anterior ankle foot orthosis as compared to posterior ankle foot orthosis while there were no significant changes in gait analysis between the two.

CONCLUSION: The study concluded that wearing anterior ankle foot orthosis was better metabolically than posterior ankle foot orthosis.

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Burden and stress in care-givers of children with cerebral palsy

Ramita Sardana, S L Yadav, U Singh, Sanjay Wadhwa, Gita Handa, Manju Mehta, R M Pandey***

Study Design : Descriptive study.

Objective : The purpose of this descriptive research was to examine caregiver burden and to investigate the predicting power of caregiver's age, family income, care giver's health status etc. on stress and burden of care-

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givers of children with cerebral palsy.

Material and method : The study sample consisted of 65 primary care-givers of children with cerebral palsy aged 6 months to 10 years. Two scales were used, DAS scale and care-giver burden scale. Data were collected by questionnaires. Descriptive statistics and multiple regression were used for data analysis.

Results : The results revealed that emotional burden on care-givers of children with cerebral palsy was moderate, financial burden was low and physical and social burden were low to moderate.

Conclusion: From this study it is concluded that care - givers of children with cerebral palsy experience burden and stress. These findings suggest that doctors should provide intervention to increase the care-giver's skill in providing care and coping, enhance support networks and encourage and promote the health and well being of care-givers, so that care-givers can effectively and efficiently care for their children with cerebral palsy.

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A study of effects of intervention of botulinum toxin A on lower limb in children with spastic cerebral palsy

Raj Kumar, S Wadhwa, U Singh, S L Yadav

STUDY DESIGN : Prospective study

OBJECTIVE : Analysis of clinical gait pattern, change in spasticity and range of motion cerebral palsy patient with spastic lower limb muscle after injecting botulinum toxin- A.

MATERIAL AND METHODS : 28 children (18 males and 10 females) with spastic CP had problems in normal walking, aged 2–9 years (mean age 4.6 years), consecutively treated in the PMR department over a 20-month period, were prospectively followed-up and clinically assessed pre- and post-treatment (at 2 weeks and 2 months) both objectively and subjectively. Objective parameter included gait parameters – Stride length, cadence, velocity, step length, base of support; active range of motion (ROM), Passive ROM (measured by goniometry) and grading of muscle spasticity on Modified Ashworth scale. Subjective assessment were questionnaire in terms of comfort, ease of care, perineal hygiene,

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walking. Injections were performed using clinical palpatory method on OPD basis. All patients received BTX-A injections, followed with physical and occupational therapy and orthosis as needed.

RESULTS : Significant improvement was achieved for spasticity reduction in gastrocnemius ($p< 0.001$), hamstring and adductor ($p=0.050$), ankle AROM and PROM ($p< 0.001$) , active knee extension ($p=0.009$), popliteal angle ($p=0.015$) and % left and right foot contact ($p< 0.001$), whereas non-significant change observed in step length, cadence, velocity , stride length and base of support. Parents felt subjective improvement in >90% of cases.

CONCLUSION : Botulinum toxin- A injection of the lower limb muscles is established as effective in the treatment of spastic equinus/crouching/scissoring in patients with cerebral palsy. The treatment was feasible and easily implemented. Botulinum toxin- A injections were well tolerated, yielded no serious treatment-related adverse events.

Pachydermadactyly

Sumalatha K B, Dheeraj A, U Singh

A 23-year male, student from Delhi, presented with swelling of small joints of both hands for 3 years. There was no history of pain, fever, early morning stiffness, restriction of joint range of motion, difficulty with activities of daily living. There was no history of similar complaints in the past. On examination, there was no erythema, increased temperature, or tenderness. Swelling was soft in consistency and there was no restriction of joint range of motion. His lab investigations including complete haemogram and RF were within normal limits. B/L hand x-rays showed only soft tissue swelling around PIP joints of medial four fingers. There was no joint space reduction, erosions or peri-articular osteopenia. He had been treated with DMARDs and steroids (for short duration) previously with no improvement or worsening of symptoms. These features are consistent with diagnosis of pachydermadactyly, which is a rare distinct form of fibromatosis characterised by dense fibrosis and fibroblastic proliferation around one or more proximal interphalangeal joints. It usually affects the medial, lateral and dorsal aspects of proximal interphalangeal joints of digits II-V. It is a benign condition that mimics rheumatological disorders like rheumatoid arthritis, psoriatic arthritis, etc. We present a case report of pachydermadactyly and comment on the available literature as a benign condition like this should not be overly treated.

Department of PMR, AIIMS, New Delhi
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A comparative study of efficacy of intra-articular injections of a single dose high molecular weight hyaluronic acid (HMW HA) versus 3 doses of mid molecular weight hyaluronic acid (MMW HA) in OAknee

A Banerjee, T Ahmed, P P Das, R Pramanik, P Das, A Palit

Objective : This comparative study investigated the efficacy of intraarticular injections of a single dose HMW HA versus 3 doses of MMW HA on knee osteo-arthritis (OA).

Study Design : Prospective randomized experimental study.

Study Place : OPD of Deptt. of PM&R, IPGME&R, Kolkata.

Study Duration : 3 months.

Study Sample : 40 patients. In each group twenty subjects with OA knee were injected with high and mid molecular weigh HA.

Methodology :

Inclusion criteria:

1) All patients with primary osteo-arthritis knee.

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2) Grade two or grade three osteo-arthritis knee.

Exclusion criteria:

1) All patients with secondary osteo-arthritis knee.
2) Grade one or grade four osteo-arthritis knee.
3) Patients with gross ligamental instability.
4) Patients with contraindications of intra-articular injections i.e. overlying soft tissue sepsis, bacteremia, anatomic inaccessibility, an uncooperative patient, articular instability, uncontrolled bleeding diathesis, etc.
5) Patients with contraindications of intra-articular HMW HA i.e. allergy to a visco-supplementation solution.

Assessment Criteria :

1) Pain & functional status components of the Western Ontario and McMaster Universities (WOMAC) scale,
2) VAS score and
3) 50 feet walktime

These were measured at baseline, 3 and 6 weeks post intervention.

Result Analysis: Significant improvement was found in patients who were treated with HMW HA injections ($p<0.05$). However, for the group which was treated with MMW HA, the improvement was not significant as the results yielded $p> 0.05$.

Conclusion : The results of the study indicated that the group treated with HMW HA showed better results compared to the group treated with MMW HA.

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Material and Method : A prospective study conducted at PMR department, AIIMS, on 33 consenting patients of Ankylosing spondylitis, who fulfilled Modified New York criteria which included 31 males, 2 females, aged between 16 and 65 years. NAAS set of exercises along with deep breathing exercise was given for a period of 3 months. Compliance chart and tablet count chart were given to the patients. Patients were followed up every 6 weeks. Bath ankylosing spondylitis disease activity index (BASDAI), bath ankylosing spondylitis functional index (BASFI),bath ankylosing spondylitis metrology index (BASMI), bath ankylosing spondylitis global index (BAS-G), multidimentional assessment of fatigue (MAF), Ankylosing spondylitis quality of life (ASQoL) scales were administered to measure disease activity, functional status, spinal mobility, sense of well being, fatigue levels and quality of life in patients before and after exercise therapy.

Results : Statistically significant changes in median value of following parameters were obtained, BASDAI from 4.9 to 3.3 ($p<0.0007$), BASFI 4.4 to 3.4 ($p<0.004$), BASG 6 to 4.5 ($p<0.0005$), MAF 65.5 to 50 ($p<0.0004$), ASQoL 12 to 8 ($p<0.0088$) and no change in BASMI ($p<0.0813$).

Conclusion : Home based exercise therapy improved the sense of well being, quality of life, fatigue levels, and improvement in activities of daily living and reduce disease activity in patients with Ankylosing Spondylitis under study. Not much change in spinal mobility was found.

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Assessment of total contact casting in diabetic neuropathic foot ulcers

A Basak, T Ahmed, S Mishra, P P Das, A Palit, R N Haldar

OBJECTIVE : To determine the outcome of diabetic neuropathic foot ulcers treated with total contact casting (TCC) in terms of duration to heal and percentage of ulcers healed based on improvement of Wagner's grading.

Abstract

STUDY DESIGN : Prospective Clinical Trial.

SAMPLE SIZE : 30 patients.

PLACE OF STUDY : Department of Physical Medicine & Rehabilitation,IPGME & R,SSKM Hospital,Kolkata.

DURATION OF STUDY :6 months.

INCLUSION CRITERIA : Diabetic neuropathic foot ulcers upto grade 2 of Wagner's classification treated with local dressing, antibiotic, orthosis but with no improvement.

EXCLUSION CRITERIA :

(1) Patients unwilling to give consent.

(2) Active or acute deep infection, sepsis or gangrene.

(3) Patients unable to comply with follow-up visits or wearing precautions.

MATERIALS AND METHODS :

After selection of the patients based on inclusion and exclusion criteria,ulcers were debrided off under aseptic condition and total contact casting was applied.Total contact casting was removed weekly and was done again if necessary for the maximum period of 6 weeks or till healing.Cases were labelled as cast failure when there was no improvement of Wagner's grading in 6 weeks.Main outcome measures were duration to heal and improvement of Wagner's grading.

RESULTS : Twenty patients were males and 10 patients were females; 90% patients (27 patients) responded to total contact casting in 6 weeks which was statistically significant ($p < 0.05$); 10% cases(3 patients) were labelled as cast failure.Among 27 responders, in 20 patients (74.07%) ulcers took an average of 4 weeks to heal completely.In 14.81% patients ulcers healed completely in 6 weeks and in 11.11% patients ulcers healed completely in 2 weeks.Among the responders 66.66% patients had ulcers in forefoot, 22.22% patients had ulcers in midfoot and 11.11% patients had ulcers in hindfoot. Among the cast failure cases 66.66% patients had ulcers in hindfoot.

DISCUSSION :A study on the similar topic has been found in the following reference – J.Coll Physicians Sur Pak. 2008 Nov;18(11):695-8.They found total contact casting as an effective treatment modality for diabetic neuropathic foot ulcers.

CONCLUSION : Total contact casting is an effective treatment modality for neuropathic diabetic foot ulcers with Wagner's grade up to 2.

Effect of phenol neurolysis in the treatment of spasticity:a Calicut experience

Pradeep Kumar Kalathil, T K Vasudevan**, S Abdul Gafoor****

Objective: To assess the decrease in spasticity after phenol neurolysis.

Design: Before – after trial with 6 months follow-up.

Setting: Out paients and in patients attending PMR department at Calicut Medical college, Kerala from January1 to June 30, 2011.

Materials and Methods: Patients with spasticity grade 2 and more were treated with peripheral nerve phenol block after nerve localisation with nerve stimulator. Evaluation included clinical assessment of spasticity (Ashwaorth Scale) and FIM scoring after 1 week, 3 weeks, and 6 weeks and thereafter monthly.

Results: Spasticity decreased after neurolysis . Significant functional improvement was also noted.

Conclusion: Phenol neurolysis is a useful and cost effective treatment for spasticity.

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Abstract

Comperative study between the efficacy of facet joint block and ultrasound therapy in L4/L5 facet arthropathy

T Ahmed, A Basak, A Banerjee, S Iswarari, R Pramanik, P Das

STUDY DESIGN: Prospective randomised control study

STUDY PLACE: NRSMC& SSKM, IPGMER

INCUSION CRITERIA:

(i) L_4/L_5 Facet arthropathy who failed 2 weeks conservative treatment

(ii) Clinical symptoms and signs of facet arthropathy

EXCLUSION CRITERIA :

(i) Structural congenital vertebral anomalies
(ii) Associated PIVD/ spondylolisthesis
(iii) Spondylo-arthropathy
(iv) Unable to give consent
(v) Bleeding diatheses
(vi) Contra-indication of facet joint block/ UST

SAMPLE SIZE : 60 patients

MATERIALS and METHODS : Patients with facet arthropathy of L4/ L5 attended in PMR OPD of NRSMCH &SSKM IPGMER who already received 2 weeks of conservative treatment with orthoses, NSAID and exercise. Patients were divided randomly into 2 groups after taking consent from patients. Group A received facet joint block and group B received a course of UST. Follow-up were done on 0, 3weeks, 6 weeks.

ASSESSMENT CRITERIA: VAS, OSWESTRY INDEX (pain, disability)

RESULT ANALYSIS: Using SPSS software

DISCUSSION: Comparison of the reduction of pain and disability between the conservative treatment and the facet joint block group showed that there is statistically significant improvement (p value < 0.05) in those patients treated with facet joint block. UST showed improvement without statistical significance.

CONCLUSION: Facet joint block is definitely helpful in treatment of L4/L5 facet arthropathy.

KEY WORDS: Facet joint arthropathy, UST, Facet joint injection.

Abstract

Comparison of anterior and posterior ankle foot orthoses in foot drop patients by metabolic analysis

*Harleen Uppal, Gita Handa, U Singh, S Wadhwa, S L Yadav, R M Pandey**

OBJECTIVE: This is a preliminary study being conducted to investigate the changes and compare them in terms of metabolic equivalent, VO_2, VCO_2 and gait patterns in foot drop patients with anterior and posterior ankle foot orthoses.

STUDY DESIGN: The subject group comprises 20 unilateral foot drop patients who can walk independently or with a cane, after obtaining clearance from the Ethics Committee. Only patients with a spasticity score of <2 as per the Modified Ashworth Scale are being included in the study. A cross-over study is being conducted. Metabolic analysis and gait analysis of the patients is carried out while wearing anterior and posterior ankle foot orthoses separately using START 2000M portable metabolic analyser system and the Zebris Gait Analysis System respectively. The study also includes a subjective questionnaire after 1 month to ask the patient's preference. The entire study is being conducted in the out patient department of Physical Medicine and Rehabilitation, All India Institute of Medical Sciences.

RESULTS: In 8 patients till now we have seen a decrease in metabolic equivalent in patients wearing anterior ankle foot orthosis as compared to posterior ankle foot orthosis while there were no significant changes in gait analysis between the two.

CONCLUSION: The study concluded that wearing anterior ankle foot orthosis was better metabolically than posterior ankle foot orthosis.

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Burden and stress in care-givers of children with cerebral palsy

Ramita Sardana, S L Yadav, U Singh, Sanjay Wadhwa, Gita Handa, Manju Mehta, R M Pandey***

Study Design : Descriptive study.

Objective : The purpose of this descriptive research was to examine caregiver burden and to investigate the predicting power of caregiver's age, family income, care giver's health status etc. on stress and burden of care-

Abstract

givers of children with cerebral palsy.

Material and method : The study sample consisted of 65 primary care-givers of children with cerebral palsy aged 6 months to 10 years. Two scales were used, DAS scale and care-giver burden scale. Data were collected by questionnaires. Descriptive statistics and multiple regression were used for data analysis.

Results : The results revealed that emotional burden on care-givers of children with cerebral palsy was moderate, financial burden was low and physical and social burden were low to moderate.

Conclusion: From this study it is concluded that care - givers of children with cerebral palsy experience burden and stress. These findings suggest that doctors should provide intervention to increase the care-giver's skill in providing care and coping, enhance support networks and encourage and promote the health and well being of care-givers, so that care-givers can effectively and efficiently care for their children with cerebral palsy.

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A study of effects of intervention of botulinum toxin A on lower limb in children with spastic cerebral palsy

Raj Kumar, S Wadhwa, U Singh, S L Yadav

STUDY DESIGN : Prospective study

OBJECTIVE : Analysis of clinical gait pattern, change in spasticity and range of motion cerebral palsy patient with spastic lower limb muscle after injecting botulinum toxin- A.

MATERIAL AND METHODS : 28 children (18 males and 10 females) with spastic CP had problems in normal walking, aged 2–9 years (mean age 4.6 years), consecutively treated in the PMR department over a 20-month period, were prospectively followed-up and clinically assessed pre- and post-treatment (at 2 weeks and 2 months) both objectively and subjectively. Objective parameter included gait parameters – Stride length, cadence, velocity, step length, base of support; active range of motion (ROM), Passive ROM (measured by goniometry) and grading of muscle spasticity on Modified Ashworth scale. Subjective assessment were questionnaire in terms of comfort, ease of care, perineal hygiene,

Abstract

walking. Injections were performed using clinical palpatory method on OPD basis. All patients received BTX-A injections, followed with physical and occupational therapy and orthosis as needed.

RESULTS : Significant improvement was achieved for spasticity reduction in gastrocnemius ($p< 0.001$), hamstring and adductor ($p=0.050$), ankle AROM and PROM ($p< 0.001$) , active knee extension ($p=0.009$), popliteal angle ($p=0.015$) and % left and right foot contact ($p< 0.001$), whereas non-significant change observed in step length, cadence, velocity , stride length and base of support. Parents felt subjective improvement in >90% of cases.

CONCLUSION : Botulinum toxin- A injection of the lower limb muscles is established as effective in the treatment of spastic equinus/crouching/scissoring in patients with cerebral palsy. The treatment was feasible and easily implemented. Botulinum toxin- A injections were well tolerated, yielded no serious treatment-related adverse events.

Pachydermadactyly

Sumalatha K B, Dheeraj A, U Singh

A 23-year male, student from Delhi, presented with swelling of small joints of both hands for 3 years. There was no history of pain, fever, early morning stiffness, restriction of joint range of motion, difficulty with activities of daily living. There was no history of similar complaints in the past. On examination, there was no erythema, increased temperature, or tenderness. Swelling was soft in consistency and there was no restriction of joint range of motion. His lab investigations including complete haemogram and RF were within normal limits. B/L hand x-rays showed only soft tissue swelling around PIP joints of medial four fingers. There was no joint space reduction, erosions or peri-articular osteopenia. He had been treated with DMARDs and steroids (for short duration) previously with no improvement or worsening of symptoms. These features are consistent with diagnosis of pachydermadactyly, which is a rare distinct form of fibromatosis characterised by dense fibrosis and fibroblastic proliferation around one or more proximal interphalangeal joints. It usually affects the medial, lateral and dorsal aspects of proximal interphalangeal joints of digits II-V. It is a benign condition that mimics rheumatological disorders like rheumatoid arthritis, psoriatic arthritis, etc. We present a case report of pachydermadactyly and comment on the available literature as a benign condition like this should not be overly treated.

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A comparative study of efficacy of intra-articular injections of a single dose high molecular weight hyaluronic acid (HMW HA) versus 3 doses of mid molecular weight hyaluronic acid (MMW HA) in OAknee

A Banerjee, T Ahmed, P P Das, R Pramanik, P Das, A Palit

Objective : This comparative study investigated the efficacy of intraarticular injections of a single dose HMW HA versus 3 doses of MMW HA on knee osteo-arthritis (OA).

Study Design : Prospective randomized experimental study.

Study Place : OPD of Deptt. of PM&R, IPGME&R, Kolkata.

Study Duration : 3 months.

Study Sample : 40 patients. In each group twenty subjects with OA knee were injected with high and mid molecular weigh HA.

Methodology :

Inclusion criteria:

1) All patients with primary osteo-arthritis knee.

Abstract

2) Grade two or grade three osteo-arthritis knee.

Exclusion criteria:

1) All patients with secondary osteo-arthritis knee.
2) Grade one or grade four osteo-arthritis knee.
3) Patients with gross ligamental instability.
4) Patients with contraindications of intra-articular injections i.e. overlying soft tissue sepsis, bacteremia, anatomic inaccessibility, an uncooperative patient, articular instability, uncontrolled bleeding diathesis, etc.
5) Patients with contraindications of intra-articular HMW HA i.e. allergy to a visco-supplementation solution.

Assessment Criteria :

1) Pain & functional status components of the Western Ontario and McMaster Universities (WOMAC) scale,
2) VAS score and
3) 50 feet walktime

These were measured at baseline, 3 and 6 weeks post intervention.

Result Analysis: Significant improvement was found in patients who were treated with HMW HA injections ($p<0.05$). However, for the group which was treated with MMW HA, the improvement was not significant as the results yielded $p> 0.05$.

Conclusion : The results of the study indicated that the group treated with HMW HA showed better results compared to the group treated with MMW HA.

Abstract of National Mid Term CME 2011, Kolkata

Review of result of reconstructive surgeries in claw hand in leprosy cured patient

Vinod Prasad,
Assistant Professor, PMR Department, Patna Medical College

OBJECTIVE: Leprosy, though claimed to be cured, is yet prevalent in some parts of country, especially Bihar, Jharkhand. Cases do come with deformities of hands and feet, though leprosy disease itself cured. To improve functional result and lead a socially integrated and respectable life, we operated such cases of claw hand deformities.

MATERIALS & METHODS: We select the cases reporting to PMR OPD Deptt. Patna Medical College & hospital. Cases were referred from Primary Health Centre, District Hospitals and Skin department. We selected only those cases who have taken full course of MDT and who were otherwise fit for tendon transfer.

After a good period of pre-operative exercise to strengthen F.D.S of middle/ ring fingers, we operated generally under regional anaesthesia and esmarch tourniquet. We transferred flexor digitorum sublimis of middle finger to flexor pulleys of all the four fingers for claw hand. For opponensplasty, we transferred FDS of ring finger to exert effect of abduction and opposition. Postoperatively the hand was immobilised in P.O.P cast for three weeks. After that stiches removed, exercise started and fingers were kept in cylinder cast for further 2-3 weeks.

RESULTS: In most case unilateral upper limb was involved (78%). Least no (2.6%) was involved of both upper and lower limb. In upper limb, total claw i.e.(affection of ulnar and median nerves) was 7.6%. Postoperatively at the end of 24 months result were good (35%), workable (32%), excellent (12.6%), and poor (11.3%). Criteria were as suggested by DIFT. Commonest complication was flexion of PIP joint of finger. For this we used finger cylinder cast/ orthoses for longer period.

CONCLUSION: These neglected patients of post-Hansen's claw hand deformity certainly need care at tertiary treatment level. Apart from cosmetic look, ADL activities and functional gain has been achieved markedly. This helps patient attend and participated in various social activities.

Management of a case of spinal cord injury with flexor spasm and spasticity: what is appropriate technology?

*K Wangjam**

Introduction: Spinal cord injury is associated with various forms of hypertonia, including flexor spasm and spasticity. Hypertonia has to be treated if it interferes with the treatment programme, function or causes complications. Out of several methods of intervention, it is important to decide what is the most appropriate for a case.

Case: Fifteen years old male who suffered from # dislocation of C5 over C6 with incomplete C5 tetraplegia following injury due to fall from height on 18.10.10 is presented to illustrate the problem. He belonged to rural background and low economic status.

He was treated elsewhere before attending PMR on 10.01.11. He had severe spasticity and flexor spasm affecting both lower limbs (grade III to IV). In addition to the above, he had 3 major maltreatment related problems: (i) Grade VI sacral and left trochanteric sore. (ii) Penoscortal fistula. (iii) Effects of decompensation.

Results: Oral baclofen was tried for 3 weeks with incremental doses from 15 mg daily to 45 mg daily in divided doses. On the failure of this pharmacological intervention, injection phenol aqueous solution for motor point block and nerve block was performed on several sessions for different muscles and nerves. Video to record the change from pre-injection grade IV to grade I postinjection will demonstrate the effect. A new technique of injection of iliopsoas will be shown.

Discussion: Surgical intervention options are selective dorsal rhizotomy (SDR), peripheral orthopaldic procedures, like single event multiple level (SEML) type of surgery or/and neurectomies were not considered as the neurological status was evolving. Current status of these procedures reviewed.

Interventions which have temporary or reversible effect will be most suited for the case. Of which, intrathecal baclofen (ITB) would have been most appropriate. Cost

Abstract

and high-end technology is out of reach for a patient like him. Other alternative would have been low-end technology product like multiple sites Botox injection would have served as the second best. But the cost is absolutely forbidding. Recent status of these procedures will be given.

Conclusion: Selection of method of reducing hypertonia in SCI is not enough; most important is the appropriate technology for a case.

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* Professor & Head. PMR.
RIMS, Imphal

Integrated and challenging rehabilitation improves span and quality of life in SCI

M M Ghatak
(Founder & In-charge Medical Rehab Center, Kolkata)

Rehab not only improves quality of life, but also gives years to the life in SCI. Among 526 cases of SCI patients, rehabilitated as indoor basis (2 months to 14 months stay) in medical rehab centre, Kolkata a classical case report is given here.

Mr. X , a case of D12 # with complete paraplagia, after pedicle screw fixation was admitted for rehab with very poor GC , emaciated stature, blackish and shrunken eyes, severe UTI and fever,catheterised bladder, big sacral stage III pressure sore, poor nutritional background , constipated bowel and complete motor and sensory loss below the level of injury. The entire ailment compounded with mental depression.

Rehab started with tackling the severe medical illness. Medical experts, PMR and subspecialities (PT, OT, psychotherapist, nutritionist) were involved. Superspeciality teams consisted of pressure sore team (plastic surgeon, dressor attendant, sister and nutritionist), physical rehab team (PMR, PT, OT, orthotist) , Psycho Rehab team (PMR, psychotherapist, psychiatrist, attendant, sister), uro rehab team (urologist, RMO, sister, PMR), ortho team (orthopaedician, RMO, PMR, dressure) started working

He passed through series of problems as - H.O left hip – surgically removed for functional sitting, bedsore after recognisable healing – flap and skin grafting done, mild DVT – treated with LMWX and warfarin which induced increase PT and INR and bleeding, managed with FFP and conservatives. Mental depression led him to attempting suicide and psycho rehab and medicine actively dealt the situation, after urodynamic study CIC started and practised successfully, muscular bulk and physical strength and fitness came after control of all medical events and monitoring the nutrition scientifically and eventually. Wheelchair training, transfer techniques etc trained, home modification guidelines and vocational assessment and guidelines supplied to the patient A 13 months challenging rehab management successfully sent the patient at home.

PMR, the team leader, in true sense the doner of a bright positive life with increasing survival of a patient, gains positive scientific satisfaction than any other speciality and PMR speciality would find their knowledge not stuck and struggled by the encroachment of other specialists.

Closed phenol neurolysis and tibial neurectomy for gastrosoleus spasticity reduction and improvement of ambulation – a cohort study

Javed Anees*, T K Vasudevan**, S Abdul Gafoor***

Objective:- To compare the effects of closed phenol neurolysis and tibial neurectomy in decreasing spasticity and improving ambulation in patients with spastic equinus.

Design:- Cohort study

Setting: - Inpatients admitted in PM&R department, Calicut Medical College, Kerala.

Abstract

Study period: From January1 to July 31.

Method: - Patients with spasticity grade 2 and more were treated with peripheral nerve phenol block after nerve localisation with stimulator and posterior tibial neurectomy. Evaluation included clinical assessment scale of spasticity (modified Ashworth scale – MAS), FIM scale for transfer, Walking index for SCI.

Scoring of MAS and FIM, WISCI done 1 week, 3weeks and 6 weeks, 12 weeks after interventions.

Results: - Both groups showed significant reduction in spasticity and improvement in ambulation; more reduction of spasticity was observed with tibial neurotomy. Final results await the completion of study period.

Conclusion: -Current trend shows more favourable result in reduction of spasticity of tibial neurotomy and final results are being awaited.

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**Assistant Professor
***Professor and HOD- Department of PM&R, Calicut Medical College

A study of effects of home based exercise therapy on spinal mobility, fatigue, quality of life, disease activity and functional capacity in patients suffering from ankylosing spondylitis

Prajna Ranjani M, Sanjay Wadhwa, U Singh, Uma Kumar, R M Pandey***

Objective: To study the effects of home based exercise therapy on spinal mobility, functional capacity, daily activity, level of disease activity, extent of sense of well being, quality of life, fatigue, in patients of ankylosing spondylitis.

Material and Method : A prospective study conducted at PMR department, AIIMS, on 33 consenting patients of Ankylosing spondylitis, who fulfilled Modified New York criteria which included 31 males, 2 females, aged between 16 and 65 years. NAAS set of exercises along with deep breathing exercise was given for a period of 3 months. Compliance chart and tablet count chart were given to the patients. Patients were followed up every 6 weeks. Bath ankylosing spondylitis disease activity index (BASDAI), bath ankylosing spondylitis functional index (BASFI),bath ankylosing spondylitis metrology index (BASMI), bath ankylosing spondylitis global index (BAS-G), multidimentional assessment of fatigue (MAF), Ankylosing spondylitis quality of life (ASQoL) scales were administered to measure disease activity, functional status, spinal mobility, sense of well being, fatigue levels and quality of life in patients before and after exercise therapy.

Results : Statistically significant changes in median value of following parameters were obtained, BASDAI from 4.9 to 3.3 ($p<0.0007$), BASFI 4.4 to 3.4 ($p<0.004$), BASG 6 to 4.5 ($p<0.0005$), MAF 65.5 to 50 ($p<0.0004$), ASQoL 12 to 8 ($p<0.0088$) and no change in BASMI ($p<0.0813$).

Conclusion : Home based exercise therapy improved the sense of well being, quality of life, fatigue levels, and improvement in activities of daily living and reduce disease activity in patients with Ankylosing Spondylitis under study. Not much change in spinal mobility was found.

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Assessment of total contact casting in diabetic neuropathic foot ulcers

A Basak, T Ahmed, S Mishra, P P Das, A Palit, R N Haldar

OBJECTIVE : To determine the outcome of diabetic neuropathic foot ulcers treated with total contact casting (TCC) in terms of duration to heal and percentage of ulcers healed based on improvement of Wagner's grading.

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SAMPLE SIZE : 30 patients.

PLACE OF STUDY : Department of Physical Medicine & Rehabilitation,IPGME & R,SSKM Hospital,Kolkata.

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After selection of the patients based on inclusion and exclusion criteria,ulcers were debrided off under aseptic condition and total contact casting was applied.Total contact casting was removed weekly and was done again if necessary for the maximum period of 6 weeks or till healing.Cases were labelled as cast failure when there was no improvement of Wagner's grading in 6 weeks.Main outcome measures were duration to heal and improvement of Wagner's grading.

RESULTS : Twenty patients were males and 10 patients were females; 90% patients (27 patients) responded to total contact casting in 6 weeks which was statistically significant ($p < 0.05$); 10% cases(3 patients) were labelled as cast failure.Among 27 responders, in 20 patients (74.07%) ulcers took an average of 4 weeks to heal completely.In 14.81% patients ulcers healed completely in 6 weeks and in 11.11% patients ulcers healed completely in 2 weeks.Among the responders 66.66% patients had ulcers in forefoot, 22.22% patients had ulcers in midfoot and 11.11% patients had ulcers in hindfoot. Among the cast failure cases 66.66% patients had ulcers in hindfoot.

DISCUSSION :A study on the similar topic has been found in the following reference – J.Coll Physicians Sur Pak. 2008 Nov;18(11):695-8.They found total contact casting as an effective treatment modality for diabetic neuropathic foot ulcers.

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Pradeep Kumar Kalathil, T K Vasudevan**, S Abdul Gafoor****

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Design: Before – after trial with 6 months follow-up.

Setting: Out paients and in patients attending PMR department at Calicut Medical college, Kerala from January1 to June 30, 2011.

Materials and Methods: Patients with spasticity grade 2 and more were treated with peripheral nerve phenol block after nerve localisation with nerve stimulator. Evaluation included clinical assessment of spasticity (Ashwaorth Scale) and FIM scoring after 1 week, 3 weeks, and 6 weeks and thereafter monthly.

Results: Spasticity decreased after neurolysis . Significant functional improvement was also noted.

Conclusion: Phenol neurolysis is a useful and cost effective treatment for spasticity.

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Abstract

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T Ahmed, A Basak, A Banerjee, S Iswarari, R Pramanik, P Das

STUDY DESIGN: Prospective randomised control study

STUDY PLACE: NRSMC& SSKM, IPGMER

INCUSION CRITERIA:

(i) L_4/L_5 Facet arthropathy who failed 2 weeks conservative treatment

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(i) Structural congenital vertebral anomalies
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SAMPLE SIZE : 60 patients

MATERIALS and METHODS : Patients with facet arthropathy of L4/ L5 attended in PMR OPD of NRSMCH &SSKM IPGMER who already received 2 weeks of conservative treatment with orthoses, NSAID and exercise. Patients were divided randomly into 2 groups after taking consent from patients. Group A received facet joint block and group B received a course of UST. Follow-up were done on 0, 3weeks, 6 weeks.

ASSESSMENT CRITERIA: VAS, OSWESTRY INDEX (pain, disability)

RESULT ANALYSIS: Using SPSS software

DISCUSSION: Comparison of the reduction of pain and disability between the conservative treatment and the facet joint block group showed that there is statistically significant improvement (p value < 0.05) in those patients treated with facet joint block. UST showed improvement without statistical significance.

CONCLUSION: Facet joint block is definitely helpful in treatment of L4/L5 facet arthropathy.

KEY WORDS: Facet joint arthropathy, UST, Facet joint injection.

Abstract

Comparison of anterior and posterior ankle foot orthoses in foot drop patients by metabolic analysis

*Harleen Uppal, Gita Handa, U Singh, S Wadhwa, S L Yadav, R M Pandey**

OBJECTIVE: This is a preliminary study being conducted to investigate the changes and compare them in terms of metabolic equivalent, VO_2, VCO_2 and gait patterns in foot drop patients with anterior and posterior ankle foot orthoses.

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RESULTS: In 8 patients till now we have seen a decrease in metabolic equivalent in patients wearing anterior ankle foot orthosis as compared to posterior ankle foot orthosis while there were no significant changes in gait analysis between the two.

CONCLUSION: The study concluded that wearing anterior ankle foot orthosis was better metabolically than posterior ankle foot orthosis.

*Department of Physical Medicine and Rehabilitation, All India Institute of Medical Sciences. Department of Biostatistics, All India Institute of Medical Sciences

Burden and stress in care-givers of children with cerebral palsy

Ramita Sardana, S L Yadav, U Singh, Sanjay Wadhwa, Gita Handa, Manju Mehta, R M Pandey***

Study Design : Descriptive study.

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Abstract

givers of children with cerebral palsy.

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Results : The results revealed that emotional burden on care-givers of children with cerebral palsy was moderate, financial burden was low and physical and social burden were low to moderate.

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A study of effects of intervention of botulinum toxin A on lower limb in children with spastic cerebral palsy

Raj Kumar, S Wadhwa, U Singh, S L Yadav

STUDY DESIGN : Prospective study

OBJECTIVE : Analysis of clinical gait pattern, change in spasticity and range of motion cerebral palsy patient with spastic lower limb muscle after injecting botulinum toxin- A.

MATERIAL AND METHODS : 28 children (18 males and 10 females) with spastic CP had problems in normal walking, aged 2–9 years (mean age 4.6 years), consecutively treated in the PMR department over a 20-month period, were prospectively followed-up and clinically assessed pre- and post-treatment (at 2 weeks and 2 months) both objectively and subjectively. Objective parameter included gait parameters – Stride length, cadence, velocity, step length, base of support; active range of motion (ROM), Passive ROM (measured by goniometry) and grading of muscle spasticity on Modified Ashworth scale. Subjective assessment were questionnaire in terms of comfort, ease of care, perineal hygiene,

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walking. Injections were performed using clinical palpatory method on OPD basis. All patients received BTX-A injections, followed with physical and occupational therapy and orthosis as needed.

RESULTS : Significant improvement was achieved for spasticity reduction in gastrocnemius ($p< 0.001$), hamstring and adductor ($p=0.050$), ankle AROM and PROM ($p< 0.001$) , active knee extension ($p=0.009$), popliteal angle ($p=0.015$) and % left and right foot contact ($p< 0.001$), whereas non-significant change observed in step length, cadence, velocity , stride length and base of support. Parents felt subjective improvement in >90% of cases.

CONCLUSION : Botulinum toxin- A injection of the lower limb muscles is established as effective in the treatment of spastic equinus/crouching/scissoring in patients with cerebral palsy. The treatment was feasible and easily implemented. Botulinum toxin- A injections were well tolerated, yielded no serious treatment-related adverse events.

Pachydermadactyly

Sumalatha K B, Dheeraj A, U Singh

A 23-year male, student from Delhi, presented with swelling of small joints of both hands for 3 years. There was no history of pain, fever, early morning stiffness, restriction of joint range of motion, difficulty with activities of daily living. There was no history of similar complaints in the past. On examination, there was no erythema, increased temperature, or tenderness. Swelling was soft in consistency and there was no restriction of joint range of motion. His lab investigations including complete haemogram and RF were within normal limits. B/L hand x-rays showed only soft tissue swelling around PIP joints of medial four fingers. There was no joint space reduction, erosions or peri-articular osteopenia. He had been treated with DMARDs and steroids (for short duration) previously with no improvement or worsening of symptoms. These features are consistent with diagnosis of pachydermadactyly, which is a rare distinct form of fibromatosis characterised by dense fibrosis and fibroblastic proliferation around one or more proximal interphalangeal joints. It usually affects the medial, lateral and dorsal aspects of proximal interphalangeal joints of digits II-V. It is a benign condition that mimics rheumatological disorders like rheumatoid arthritis, psoriatic arthritis, etc. We present a case report of pachydermadactyly and comment on the available literature as a benign condition like this should not be overly treated.

Department of PMR, AIIMS, New Delhi
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A comparative study of efficacy of intra-articular injections of a single dose high molecular weight hyaluronic acid (HMW HA) versus 3 doses of mid molecular weight hyaluronic acid (MMW HA) in OAknee

A Banerjee, T Ahmed, P P Das, R Pramanik, P Das, A Palit

Objective : This comparative study investigated the efficacy of intraarticular injections of a single dose HMW HA versus 3 doses of MMW HA on knee osteo-arthritis (OA).

Study Design : Prospective randomized experimental study.

Study Place : OPD of Deptt. of PM&R, IPGME&R, Kolkata.

Study Duration : 3 months.

Study Sample : 40 patients. In each group twenty subjects with OA knee were injected with high and mid molecular weigh HA.

Methodology :

Inclusion criteria:

1) All patients with primary osteo-arthritis knee.

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2) Grade two or grade three osteo-arthritis knee.

Exclusion criteria:

1) All patients with secondary osteo-arthritis knee.
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3) Patients with gross ligamental instability.
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5) Patients with contraindications of intra-articular HMW HA i.e. allergy to a visco-supplementation solution.

Assessment Criteria :

1) Pain & functional status components of the Western Ontario and McMaster Universities (WOMAC) scale,
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These were measured at baseline, 3 and 6 weeks post intervention.

Result Analysis: Significant improvement was found in patients who were treated with HMW HA injections ($p<0.05$). However, for the group which was treated with MMW HA, the improvement was not significant as the results yielded $p> 0.05$.

Conclusion : The results of the study indicated that the group treated with HMW HA showed better results compared to the group treated with MMW HA.

Abstract of National Mid Term CME 2011, Kolkata

Review of result of reconstructive surgeries in claw hand in leprosy cured patient

Vinod Prasad,
Assistant Professor, PMR Department, Patna Medical College

OBJECTIVE: Leprosy, though claimed to be cured, is yet prevalent in some parts of country, especially Bihar, Jharkhand. Cases do come with deformities of hands and feet, though leprosy disease itself cured. To improve functional result and lead a socially integrated and respectable life, we operated such cases of claw hand deformities.

MATERIALS & METHODS: We select the cases reporting to PMR OPD Deptt. Patna Medical College & hospital. Cases were referred from Primary Health Centre, District Hospitals and Skin department. We selected only those cases who have taken full course of MDT and who were otherwise fit for tendon transfer.

After a good period of pre-operative exercise to strengthen F.D.S of middle/ ring fingers, we operated generally under regional anaesthesia and esmarch tourniquet. We transferred flexor digitorum sublimis of middle finger to flexor pulleys of all the four fingers for claw hand. For opponensplasty, we transferred FDS of ring finger to exert effect of abduction and opposition. Postoperatively the hand was immobilised in P.O.P cast for three weeks. After that stiches removed, exercise started and fingers were kept in cylinder cast for further 2-3 weeks.

RESULTS: In most case unilateral upper limb was involved (78%). Least no (2.6%) was involved of both upper and lower limb. In upper limb, total claw i.e.(affection of ulnar and median nerves) was 7.6%. Postoperatively at the end of 24 months result were good (35%), workable (32%), excellent (12.6%), and poor (11.3%). Criteria were as suggested by DIFT. Commonest complication was flexion of PIP joint of finger. For this we used finger cylinder cast/ orthoses for longer period.

CONCLUSION: These neglected patients of post-Hansen's claw hand deformity certainly need care at tertiary treatment level. Apart from cosmetic look, ADL activities and functional gain has been achieved markedly. This helps patient attend and participated in various social activities.

Management of a case of spinal cord injury with flexor spasm and spasticity: what is appropriate technology?

*K Wangjam**

Introduction: Spinal cord injury is associated with various forms of hypertonia, including flexor spasm and spasticity. Hypertonia has to be treated if it interferes with the treatment programme, function or causes complications. Out of several methods of intervention, it is important to decide what is the most appropriate for a case.

Case: Fifteen years old male who suffered from # dislocation of C5 over C6 with incomplete C5 tetraplegia following injury due to fall from height on 18.10.10 is presented to illustrate the problem. He belonged to rural background and low economic status.

He was treated elsewhere before attending PMR on 10.01.11. He had severe spasticity and flexor spasm affecting both lower limbs (grade III to IV). In addition to the above, he had 3 major maltreatment related problems: (i) Grade VI sacral and left trochanteric sore. (ii) Penoscortal fistula. (iii) Effects of decompensation.

Results: Oral baclofen was tried for 3 weeks with incremental doses from 15 mg daily to 45 mg daily in divided doses. On the failure of this pharmacological intervention, injection phenol aqueous solution for motor point block and nerve block was performed on several sessions for different muscles and nerves. Video to record the change from pre-injection grade IV to grade I postinjection will demonstrate the effect. A new technique of injection of iliopsoas will be shown.

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and high-end technology is out of reach for a patient like him. Other alternative would have been low-end technology product like multiple sites Botox injection would have served as the second best. But the cost is absolutely forbidding. Recent status of these procedures will be given.

Conclusion: Selection of method of reducing hypertonia in SCI is not enough; most important is the appropriate technology for a case.

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Integrated and challenging rehabilitation improves span and quality of life in SCI

M M Ghatak
(Founder & In-charge Medical Rehab Center, Kolkata)

Rehab not only improves quality of life, but also gives years to the life in SCI. Among 526 cases of SCI patients, rehabilitated as indoor basis (2 months to 14 months stay) in medical rehab centre, Kolkata a classical case report is given here.

Mr. X , a case of D12 # with complete paraplagia, after pedicle screw fixation was admitted for rehab with very poor GC , emaciated stature, blackish and shrunken eyes, severe UTI and fever,catheterised bladder, big sacral stage III pressure sore, poor nutritional background , constipated bowel and complete motor and sensory loss below the level of injury. The entire ailment compounded with mental depression.

Rehab started with tackling the severe medical illness. Medical experts, PMR and subspecialities (PT, OT, psychotherapist, nutritionist) were involved. Superspeciality teams consisted of pressure sore team (plastic surgeon, dressor attendant, sister and nutritionist), physical rehab team (PMR, PT, OT, orthotist) , Psycho Rehab team (PMR, psychotherapist, psychiatrist, attendant, sister), uro rehab team (urologist, RMO, sister, PMR), ortho team (orthopaedician, RMO, PMR, dressure) started working

He passed through series of problems as - H.O left hip – surgically removed for functional sitting, bedsore after recognisable healing – flap and skin grafting done, mild DVT – treated with LMWX and warfarin which induced increase PT and INR and bleeding, managed with FFP and conservatives. Mental depression led him to attempting suicide and psycho rehab and medicine actively dealt the situation, after urodynamic study CIC started and practised successfully, muscular bulk and physical strength and fitness came after control of all medical events and monitoring the nutrition scientifically and eventually. Wheelchair training, transfer techniques etc trained, home modification guidelines and vocational assessment and guidelines supplied to the patient A 13 months challenging rehab management successfully sent the patient at home.

PMR, the team leader, in true sense the doner of a bright positive life with increasing survival of a patient, gains positive scientific satisfaction than any other speciality and PMR speciality would find their knowledge not stuck and struggled by the encroachment of other specialists.

Closed phenol neurolysis and tibial neurectomy for gastrosoleus spasticity reduction and improvement of ambulation – a cohort study

Javed Anees*, T K Vasudevan**, S Abdul Gafoor***

Objective:- To compare the effects of closed phenol neurolysis and tibial neurectomy in decreasing spasticity and improving ambulation in patients with spastic equinus.

Design:- Cohort study

Setting: - Inpatients admitted in PM&R department, Calicut Medical College, Kerala.

Abstract

Study period: From January1 to July 31.

Method: - Patients with spasticity grade 2 and more were treated with peripheral nerve phenol block after nerve localisation with stimulator and posterior tibial neurectomy. Evaluation included clinical assessment scale of spasticity (modified Ashworth scale – MAS), FIM scale for transfer, Walking index for SCI.

Scoring of MAS and FIM, WISCI done 1 week, 3weeks and 6 weeks, 12 weeks after interventions.

Results: - Both groups showed significant reduction in spasticity and improvement in ambulation; more reduction of spasticity was observed with tibial neurotomy. Final results await the completion of study period.

Conclusion: -Current trend shows more favourable result in reduction of spasticity of tibial neurotomy and final results are being awaited.

*Junior Resident
**Assistant Professor
***Professor and HOD- Department of PM&R, Calicut Medical College

A study of effects of home based exercise therapy on spinal mobility, fatigue, quality of life, disease activity and functional capacity in patients suffering from ankylosing spondylitis

Prajna Ranjani M, Sanjay Wadhwa, U Singh, Uma Kumar, R M Pandey***

Objective: To study the effects of home based exercise therapy on spinal mobility, functional capacity, daily activity, level of disease activity, extent of sense of well being, quality of life, fatigue, in patients of ankylosing spondylitis.

Material and Method : A prospective study conducted at PMR department, AIIMS, on 33 consenting patients of Ankylosing spondylitis, who fulfilled Modified New York criteria which included 31 males, 2 females, aged between 16 and 65 years. NAAS set of exercises along with deep breathing exercise was given for a period of 3 months. Compliance chart and tablet count chart were given to the patients. Patients were followed up every 6 weeks. Bath ankylosing spondylitis disease activity index (BASDAI), bath ankylosing spondylitis functional index (BASFI),bath ankylosing spondylitis metrology index (BASMI), bath ankylosing spondylitis global index (BAS-G), multidimentional assessment of fatigue (MAF), Ankylosing spondylitis quality of life (ASQoL) scales were administered to measure disease activity, functional status, spinal mobility, sense of well being, fatigue levels and quality of life in patients before and after exercise therapy.

Results : Statistically significant changes in median value of following parameters were obtained, BASDAI from 4.9 to 3.3 ($p<0.0007$), BASFI 4.4 to 3.4 ($p<0.004$), BASG 6 to 4.5 ($p<0.0005$), MAF 65.5 to 50 ($p<0.0004$), ASQoL 12 to 8 ($p<0.0088$) and no change in BASMI ($p<0.0813$).

Conclusion : Home based exercise therapy improved the sense of well being, quality of life, fatigue levels, and improvement in activities of daily living and reduce disease activity in patients with Ankylosing Spondylitis under study. Not much change in spinal mobility was found.

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*Additional Professor, Dept. of Medicine (Rheumatology Unit), AIIMS
** Professor & Head, Dept of Biostatistics, AIIMS

Assessment of total contact casting in diabetic neuropathic foot ulcers

A Basak, T Ahmed, S Mishra, P P Das, A Palit, R N Haldar

OBJECTIVE : To determine the outcome of diabetic neuropathic foot ulcers treated with total contact casting (TCC) in terms of duration to heal and percentage of ulcers healed based on improvement of Wagner's grading.

Abstract

STUDY DESIGN : Prospective Clinical Trial.

SAMPLE SIZE : 30 patients.

PLACE OF STUDY : Department of Physical Medicine & Rehabilitation,IPGME & R,SSKM Hospital,Kolkata.

DURATION OF STUDY :6 months.

INCLUSION CRITERIA : Diabetic neuropathic foot ulcers upto grade 2 of Wagner's classification treated with local dressing, antibiotic, orthosis but with no improvement.

EXCLUSION CRITERIA :

(1) Patients unwilling to give consent.

(2) Active or acute deep infection, sepsis or gangrene.

(3) Patients unable to comply with follow-up visits or wearing precautions.

MATERIALS AND METHODS :

After selection of the patients based on inclusion and exclusion criteria,ulcers were debrided off under aseptic condition and total contact casting was applied.Total contact casting was removed weekly and was done again if necessary for the maximum period of 6 weeks or till healing.Cases were labelled as cast failure when there was no improvement of Wagner's grading in 6 weeks.Main outcome measures were duration to heal and improvement of Wagner's grading.

RESULTS : Twenty patients were males and 10 patients were females; 90% patients (27 patients) responded to total contact casting in 6 weeks which was statistically significant ($p < 0.05$); 10% cases(3 patients) were labelled as cast failure.Among 27 responders, in 20 patients (74.07%) ulcers took an average of 4 weeks to heal completely.In 14.81% patients ulcers healed completely in 6 weeks and in 11.11% patients ulcers healed completely in 2 weeks.Among the responders 66.66% patients had ulcers in forefoot, 22.22% patients had ulcers in midfoot and 11.11% patients had ulcers in hindfoot. Among the cast failure cases 66.66% patients had ulcers in hindfoot.

DISCUSSION :A study on the similar topic has been found in the following reference – J.Coll Physicians Sur Pak. 2008 Nov;18(11):695-8.They found total contact casting as an effective treatment modality for diabetic neuropathic foot ulcers.

CONCLUSION : Total contact casting is an effective treatment modality for neuropathic diabetic foot ulcers with Wagner's grade up to 2.

Effect of phenol neurolysis in the treatment of spasticity:a Calicut experience

Pradeep Kumar Kalathil, T K Vasudevan**, S Abdul Gafoor****

Objective: To assess the decrease in spasticity after phenol neurolysis.

Design: Before – after trial with 6 months follow-up.

Setting: Out paients and in patients attending PMR department at Calicut Medical college, Kerala from January1 to June 30, 2011.

Materials and Methods: Patients with spasticity grade 2 and more were treated with peripheral nerve phenol block after nerve localisation with nerve stimulator. Evaluation included clinical assessment of spasticity (Ashwaorth Scale) and FIM scoring after 1 week, 3 weeks, and 6 weeks and thereafter monthly.

Results: Spasticity decreased after neurolysis . Significant functional improvement was also noted.

Conclusion: Phenol neurolysis is a useful and cost effective treatment for spasticity.

*Junior Resident

**Assistant Professor

***Professor and HOD- Department of PM&R, Calicut Medical College

Abstract

Comperative study between the efficacy of facet joint block and ultrasound therapy in L4/L5 facet arthropathy

T Ahmed, A Basak, A Banerjee, S Iswarari, R Pramanik, P Das

STUDY DESIGN: Prospective randomised control study

STUDY PLACE: NRSMC& SSKM, IPGMER

INCUSION CRITERIA:

(i) L_4/L_5 Facet arthropathy who failed 2 weeks conservative treatment

(ii) Clinical symptoms and signs of facet arthropathy

EXCLUSION CRITERIA :

(i) Structural congenital vertebral anomalies
(ii) Associated PIVD/ spondylolisthesis
(iii) Spondylo-arthropathy
(iv) Unable to give consent
(v) Bleeding diatheses
(vi) Contra-indication of facet joint block/ UST

SAMPLE SIZE : 60 patients

MATERIALS and METHODS : Patients with facet arthropathy of L4/ L5 attended in PMR OPD of NRSMCH &SSKM IPGMER who already received 2 weeks of conservative treatment with orthoses, NSAID and exercise. Patients were divided randomly into 2 groups after taking consent from patients. Group A received facet joint block and group B received a course of UST. Follow-up were done on 0, 3weeks, 6 weeks.

ASSESSMENT CRITERIA: VAS, OSWESTRY INDEX (pain, disability)

RESULT ANALYSIS: Using SPSS software

DISCUSSION: Comparison of the reduction of pain and disability between the conservative treatment and the facet joint block group showed that there is statistically significant improvement (p value < 0.05) in those patients treated with facet joint block. UST showed improvement without statistical significance.

CONCLUSION: Facet joint block is definitely helpful in treatment of L4/L5 facet arthropathy.

KEY WORDS: Facet joint arthropathy, UST, Facet joint injection.

Abstract

Comparison of anterior and posterior ankle foot orthoses in foot drop patients by metabolic analysis

*Harleen Uppal, Gita Handa, U Singh, S Wadhwa, S L Yadav, R M Pandey**

OBJECTIVE: This is a preliminary study being conducted to investigate the changes and compare them in terms of metabolic equivalent, VO_2, VCO_2 and gait patterns in foot drop patients with anterior and posterior ankle foot orthoses.

STUDY DESIGN: The subject group comprises 20 unilateral foot drop patients who can walk independently or with a cane, after obtaining clearance from the Ethics Committee. Only patients with a spasticity score of <2 as per the Modified Ashworth Scale are being included in the study. A cross-over study is being conducted. Metabolic analysis and gait analysis of the patients is carried out while wearing anterior and posterior ankle foot orthoses separately using START 2000M portable metabolic analyser system and the Zebris Gait Analysis System respectively. The study also includes a subjective questionnaire after 1 month to ask the patient's preference. The entire study is being conducted in the out patient department of Physical Medicine and Rehabilitation, All India Institute of Medical Sciences.

RESULTS: In 8 patients till now we have seen a decrease in metabolic equivalent in patients wearing anterior ankle foot orthosis as compared to posterior ankle foot orthosis while there were no significant changes in gait analysis between the two.

CONCLUSION: The study concluded that wearing anterior ankle foot orthosis was better metabolically than posterior ankle foot orthosis.

*Department of Physical Medicine and Rehabilitation, All India Institute of Medical Sciences. Department of Biostatistics, All India Institute of Medical Sciences

Burden and stress in care-givers of children with cerebral palsy

Ramita Sardana, S L Yadav, U Singh, Sanjay Wadhwa, Gita Handa, Manju Mehta, R M Pandey***

Study Design : Descriptive study.

Objective : The purpose of this descriptive research was to examine caregiver burden and to investigate the predicting power of caregiver's age, family income, care giver's health status etc. on stress and burden of care-

Abstract

givers of children with cerebral palsy.

Material and method : The study sample consisted of 65 primary care-givers of children with cerebral palsy aged 6 months to 10 years. Two scales were used, DAS scale and care-giver burden scale. Data were collected by questionnaires. Descriptive statistics and multiple regression were used for data analysis.

Results : The results revealed that emotional burden on care-givers of children with cerebral palsy was moderate, financial burden was low and physical and social burden were low to moderate.

Conclusion: From this study it is concluded that care - givers of children with cerebral palsy experience burden and stress. These findings suggest that doctors should provide intervention to increase the care-giver's skill in providing care and coping, enhance support networks and encourage and promote the health and well being of care-givers, so that care-givers can effectively and efficiently care for their children with cerebral palsy.

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OBJECTIVE : Analysis of clinical gait pattern, change in spasticity and range of motion cerebral palsy patient with spastic lower limb muscle after injecting botulinum toxin- A.

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* Professor & Head. PMR.
RIMS, Imphal

Integrated and challenging rehabilitation improves span and quality of life in SCI

M M Ghatak
(Founder & In-charge Medical Rehab Center, Kolkata)

Rehab not only improves quality of life, but also gives years to the life in SCI. Among 526 cases of SCI patients, rehabilitated as indoor basis (2 months to 14 months stay) in medical rehab centre, Kolkata a classical case report is given here.

Mr. X , a case of D12 # with complete paraplagia, after pedicle screw fixation was admitted for rehab with very poor GC , emaciated stature, blackish and shrunken eyes, severe UTI and fever,catheterised bladder, big sacral stage III pressure sore, poor nutritional background , constipated bowel and complete motor and sensory loss below the level of injury. The entire ailment compounded with mental depression.

Rehab started with tackling the severe medical illness. Medical experts, PMR and subspecialities (PT, OT, psychotherapist, nutritionist) were involved. Superspeciality teams consisted of pressure sore team (plastic surgeon, dressor attendant, sister and nutritionist), physical rehab team (PMR, PT, OT, orthotist) , Psycho Rehab team (PMR, psychotherapist, psychiatrist, attendant, sister), uro rehab team (urologist, RMO, sister, PMR), ortho team (orthopaedician, RMO, PMR, dressure) started working

He passed through series of problems as - H.O left hip – surgically removed for functional sitting, bedsore after recognisable healing – flap and skin grafting done, mild DVT – treated with LMWX and warfarin which induced increase PT and INR and bleeding, managed with FFP and conservatives. Mental depression led him to attempting suicide and psycho rehab and medicine actively dealt the situation, after urodynamic study CIC started and practised successfully, muscular bulk and physical strength and fitness came after control of all medical events and monitoring the nutrition scientifically and eventually. Wheelchair training, transfer techniques etc trained, home modification guidelines and vocational assessment and guidelines supplied to the patient A 13 months challenging rehab management successfully sent the patient at home.

PMR, the team leader, in true sense the doner of a bright positive life with increasing survival of a patient, gains positive scientific satisfaction than any other speciality and PMR speciality would find their knowledge not stuck and struggled by the encroachment of other specialists.

Closed phenol neurolysis and tibial neurectomy for gastrosoleus spasticity reduction and improvement of ambulation – a cohort study

Javed Anees*, T K Vasudevan**, S Abdul Gafoor***

Objective:- To compare the effects of closed phenol neurolysis and tibial neurectomy in decreasing spasticity and improving ambulation in patients with spastic equinus.

Design:- Cohort study

Setting: - Inpatients admitted in PM&R department, Calicut Medical College, Kerala.

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Study period: From January1 to July 31.

Method: - Patients with spasticity grade 2 and more were treated with peripheral nerve phenol block after nerve localisation with stimulator and posterior tibial neurectomy. Evaluation included clinical assessment scale of spasticity (modified Ashworth scale – MAS), FIM scale for transfer, Walking index for SCI.

Scoring of MAS and FIM, WISCI done 1 week, 3weeks and 6 weeks, 12 weeks after interventions.

Results: - Both groups showed significant reduction in spasticity and improvement in ambulation; more reduction of spasticity was observed with tibial neurotomy. Final results await the completion of study period.

Conclusion: -Current trend shows more favourable result in reduction of spasticity of tibial neurotomy and final results are being awaited.

*Junior Resident
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A study of effects of home based exercise therapy on spinal mobility, fatigue, quality of life, disease activity and functional capacity in patients suffering from ankylosing spondylitis

Prajna Ranjani M, Sanjay Wadhwa, U Singh, Uma Kumar, R M Pandey***

Objective: To study the effects of home based exercise therapy on spinal mobility, functional capacity, daily activity, level of disease activity, extent of sense of well being, quality of life, fatigue, in patients of ankylosing spondylitis.

Material and Method : A prospective study conducted at PMR department, AIIMS, on 33 consenting patients of Ankylosing spondylitis, who fulfilled Modified New York criteria which included 31 males, 2 females, aged between 16 and 65 years. NAAS set of exercises along with deep breathing exercise was given for a period of 3 months. Compliance chart and tablet count chart were given to the patients. Patients were followed up every 6 weeks. Bath ankylosing spondylitis disease activity index (BASDAI), bath ankylosing spondylitis functional index (BASFI),bath ankylosing spondylitis metrology index (BASMI), bath ankylosing spondylitis global index (BAS-G), multidimentional assessment of fatigue (MAF), Ankylosing spondylitis quality of life (ASQoL) scales were administered to measure disease activity, functional status, spinal mobility, sense of well being, fatigue levels and quality of life in patients before and after exercise therapy.

Results : Statistically significant changes in median value of following parameters were obtained, BASDAI from 4.9 to 3.3 ($p<0.0007$), BASFI 4.4 to 3.4 ($p<0.004$), BASG 6 to 4.5 ($p<0.0005$), MAF 65.5 to 50 ($p<0.0004$), ASQoL 12 to 8 ($p<0.0088$) and no change in BASMI ($p<0.0813$).

Conclusion : Home based exercise therapy improved the sense of well being, quality of life, fatigue levels, and improvement in activities of daily living and reduce disease activity in patients with Ankylosing Spondylitis under study. Not much change in spinal mobility was found.

Department of Physical Medicine and Rehabilitation (P.M.R), AIIMS
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** Professor & Head, Dept of Biostatistics, AIIMS

Assessment of total contact casting in diabetic neuropathic foot ulcers

A Basak, T Ahmed, S Mishra, P P Das, A Palit, R N Haldar

OBJECTIVE : To determine the outcome of diabetic neuropathic foot ulcers treated with total contact casting (TCC) in terms of duration to heal and percentage of ulcers healed based on improvement of Wagner's grading.

Abstract

STUDY DESIGN : Prospective Clinical Trial.

SAMPLE SIZE : 30 patients.

PLACE OF STUDY : Department of Physical Medicine & Rehabilitation,IPGME & R,SSKM Hospital,Kolkata.

DURATION OF STUDY :6 months.

INCLUSION CRITERIA : Diabetic neuropathic foot ulcers upto grade 2 of Wagner's classification treated with local dressing, antibiotic, orthosis but with no improvement.

EXCLUSION CRITERIA :

(1) Patients unwilling to give consent.

(2) Active or acute deep infection, sepsis or gangrene.

(3) Patients unable to comply with follow-up visits or wearing precautions.

MATERIALS AND METHODS :

After selection of the patients based on inclusion and exclusion criteria,ulcers were debrided off under aseptic condition and total contact casting was applied.Total contact casting was removed weekly and was done again if necessary for the maximum period of 6 weeks or till healing.Cases were labelled as cast failure when there was no improvement of Wagner's grading in 6 weeks.Main outcome measures were duration to heal and improvement of Wagner's grading.

RESULTS : Twenty patients were males and 10 patients were females; 90% patients (27 patients) responded to total contact casting in 6 weeks which was statistically significant ($p < 0.05$); 10% cases(3 patients) were labelled as cast failure.Among 27 responders, in 20 patients (74.07%) ulcers took an average of 4 weeks to heal completely.In 14.81% patients ulcers healed completely in 6 weeks and in 11.11% patients ulcers healed completely in 2 weeks.Among the responders 66.66% patients had ulcers in forefoot, 22.22% patients had ulcers in midfoot and 11.11% patients had ulcers in hindfoot. Among the cast failure cases 66.66% patients had ulcers in hindfoot.

DISCUSSION :A study on the similar topic has been found in the following reference – J.Coll Physicians Sur Pak. 2008 Nov;18(11):695-8.They found total contact casting as an effective treatment modality for diabetic neuropathic foot ulcers.

CONCLUSION : Total contact casting is an effective treatment modality for neuropathic diabetic foot ulcers with Wagner's grade up to 2.

Effect of phenol neurolysis in the treatment of spasticity:a Calicut experience

Pradeep Kumar Kalathil, T K Vasudevan**, S Abdul Gafoor****

Objective: To assess the decrease in spasticity after phenol neurolysis.

Design: Before – after trial with 6 months follow-up.

Setting: Out paients and in patients attending PMR department at Calicut Medical college, Kerala from January1 to June 30, 2011.

Materials and Methods: Patients with spasticity grade 2 and more were treated with peripheral nerve phenol block after nerve localisation with nerve stimulator. Evaluation included clinical assessment of spasticity (Ashwaorth Scale) and FIM scoring after 1 week, 3 weeks, and 6 weeks and thereafter monthly.

Results: Spasticity decreased after neurolysis . Significant functional improvement was also noted.

Conclusion: Phenol neurolysis is a useful and cost effective treatment for spasticity.

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Abstract

Comperative study between the efficacy of facet joint block and ultrasound therapy in L4/L5 facet arthropathy

T Ahmed, A Basak, A Banerjee, S Iswarari, R Pramanik, P Das

STUDY DESIGN: Prospective randomised control study

STUDY PLACE: NRSMC& SSKM, IPGMER

INCUSION CRITERIA:

(i) L_4/L_5 Facet arthropathy who failed 2 weeks conservative treatment

(ii) Clinical symptoms and signs of facet arthropathy

EXCLUSION CRITERIA :

(i) Structural congenital vertebral anomalies
(ii) Associated PIVD/ spondylolisthesis
(iii) Spondylo-arthropathy
(iv) Unable to give consent
(v) Bleeding diatheses
(vi) Contra-indication of facet joint block/ UST

SAMPLE SIZE : 60 patients

MATERIALS and METHODS : Patients with facet arthropathy of L4/ L5 attended in PMR OPD of NRSMCH &SSKM IPGMER who already received 2 weeks of conservative treatment with orthoses, NSAID and exercise. Patients were divided randomly into 2 groups after taking consent from patients. Group A received facet joint block and group B received a course of UST. Follow-up were done on 0, 3weeks, 6 weeks.

ASSESSMENT CRITERIA: VAS, OSWESTRY INDEX (pain, disability)

RESULT ANALYSIS: Using SPSS software

DISCUSSION: Comparison of the reduction of pain and disability between the conservative treatment and the facet joint block group showed that there is statistically significant improvement (p value < 0.05) in those patients treated with facet joint block. UST showed improvement without statistical significance.

CONCLUSION: Facet joint block is definitely helpful in treatment of L4/L5 facet arthropathy.

KEY WORDS: Facet joint arthropathy, UST, Facet joint injection.

Abstract

Comparison of anterior and posterior ankle foot orthoses in foot drop patients by metabolic analysis

*Harleen Uppal, Gita Handa, U Singh, S Wadhwa, S L Yadav, R M Pandey**

OBJECTIVE: This is a preliminary study being conducted to investigate the changes and compare them in terms of metabolic equivalent, VO_2, VCO_2 and gait patterns in foot drop patients with anterior and posterior ankle foot orthoses.

STUDY DESIGN: The subject group comprises 20 unilateral foot drop patients who can walk independently or with a cane, after obtaining clearance from the Ethics Committee. Only patients with a spasticity score of <2 as per the Modified Ashworth Scale are being included in the study. A cross-over study is being conducted. Metabolic analysis and gait analysis of the patients is carried out while wearing anterior and posterior ankle foot orthoses separately using START 2000M portable metabolic analyser system and the Zebris Gait Analysis System respectively. The study also includes a subjective questionnaire after 1 month to ask the patient's preference. The entire study is being conducted in the out patient department of Physical Medicine and Rehabilitation, All India Institute of Medical Sciences.

RESULTS: In 8 patients till now we have seen a decrease in metabolic equivalent in patients wearing anterior ankle foot orthosis as compared to posterior ankle foot orthosis while there were no significant changes in gait analysis between the two.

CONCLUSION: The study concluded that wearing anterior ankle foot orthosis was better metabolically than posterior ankle foot orthosis.

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Burden and stress in care-givers of children with cerebral palsy

Ramita Sardana, S L Yadav, U Singh, Sanjay Wadhwa, Gita Handa, Manju Mehta, R M Pandey***

Study Design : Descriptive study.

Objective : The purpose of this descriptive research was to examine caregiver burden and to investigate the predicting power of caregiver's age, family income, care giver's health status etc. on stress and burden of care-

Abstract

givers of children with cerebral palsy.

Material and method : The study sample consisted of 65 primary care-givers of children with cerebral palsy aged 6 months to 10 years. Two scales were used, DAS scale and care-giver burden scale. Data were collected by questionnaires. Descriptive statistics and multiple regression were used for data analysis.

Results : The results revealed that emotional burden on care-givers of children with cerebral palsy was moderate, financial burden was low and physical and social burden were low to moderate.

Conclusion: From this study it is concluded that care - givers of children with cerebral palsy experience burden and stress. These findings suggest that doctors should provide intervention to increase the care-giver's skill in providing care and coping, enhance support networks and encourage and promote the health and well being of care-givers, so that care-givers can effectively and efficiently care for their children with cerebral palsy.

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A study of effects of intervention of botulinum toxin A on lower limb in children with spastic cerebral palsy

Raj Kumar, S Wadhwa, U Singh, S L Yadav

STUDY DESIGN : Prospective study

OBJECTIVE : Analysis of clinical gait pattern, change in spasticity and range of motion cerebral palsy patient with spastic lower limb muscle after injecting botulinum toxin- A.

MATERIAL AND METHODS : 28 children (18 males and 10 females) with spastic CP had problems in normal walking, aged 2–9 years (mean age 4.6 years), consecutively treated in the PMR department over a 20-month period, were prospectively followed-up and clinically assessed pre- and post-treatment (at 2 weeks and 2 months) both objectively and subjectively. Objective parameter included gait parameters – Stride length, cadence, velocity, step length, base of support; active range of motion (ROM), Passive ROM (measured by goniometry) and grading of muscle spasticity on Modified Ashworth scale. Subjective assessment were questionnaire in terms of comfort, ease of care, perineal hygiene,

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walking. Injections were performed using clinical palpatory method on OPD basis. All patients received BTX-A injections, followed with physical and occupational therapy and orthosis as needed.

RESULTS : Significant improvement was achieved for spasticity reduction in gastrocnemius ($p< 0.001$), hamstring and adductor ($p=0.050$), ankle AROM and PROM ($p< 0.001$) , active knee extension ($p=0.009$), popliteal angle ($p=0.015$) and % left and right foot contact ($p< 0.001$), whereas non-significant change observed in step length, cadence, velocity , stride length and base of support. Parents felt subjective improvement in >90% of cases.

CONCLUSION : Botulinum toxin- A injection of the lower limb muscles is established as effective in the treatment of spastic equinus/crouching/scissoring in patients with cerebral palsy. The treatment was feasible and easily implemented. Botulinum toxin- A injections were well tolerated, yielded no serious treatment-related adverse events.

Pachydermadactyly

Sumalatha K B, Dheeraj A, U Singh

A 23-year male, student from Delhi, presented with swelling of small joints of both hands for 3 years. There was no history of pain, fever, early morning stiffness, restriction of joint range of motion, difficulty with activities of daily living. There was no history of similar complaints in the past. On examination, there was no erythema, increased temperature, or tenderness. Swelling was soft in consistency and there was no restriction of joint range of motion. His lab investigations including complete haemogram and RF were within normal limits. B/L hand x-rays showed only soft tissue swelling around PIP joints of medial four fingers. There was no joint space reduction, erosions or peri-articular osteopenia. He had been treated with DMARDs and steroids (for short duration) previously with no improvement or worsening of symptoms. These features are consistent with diagnosis of pachydermadactyly, which is a rare distinct form of fibromatosis characterised by dense fibrosis and fibroblastic proliferation around one or more proximal interphalangeal joints. It usually affects the medial, lateral and dorsal aspects of proximal interphalangeal joints of digits II-V. It is a benign condition that mimics rheumatological disorders like rheumatoid arthritis, psoriatic arthritis, etc. We present a case report of pachydermadactyly and comment on the available literature as a benign condition like this should not be overly treated.

Department of PMR, AIIMS, New Delhi
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A comparative study of efficacy of intra-articular injections of a single dose high molecular weight hyaluronic acid (HMW HA) versus 3 doses of mid molecular weight hyaluronic acid (MMW HA) in OAknee

A Banerjee, T Ahmed, P P Das, R Pramanik, P Das, A Palit

Objective : This comparative study investigated the efficacy of intraarticular injections of a single dose HMW HA versus 3 doses of MMW HA on knee osteo-arthritis (OA).

Study Design : Prospective randomized experimental study.

Study Place : OPD of Deptt. of PM&R, IPGME&R, Kolkata.

Study Duration : 3 months.

Study Sample : 40 patients. In each group twenty subjects with OA knee were injected with high and mid molecular weigh HA.

Methodology :

Inclusion criteria:

1) All patients with primary osteo-arthritis knee.

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2) Grade two or grade three osteo-arthritis knee.

Exclusion criteria:

1) All patients with secondary osteo-arthritis knee.
2) Grade one or grade four osteo-arthritis knee.
3) Patients with gross ligamental instability.
4) Patients with contraindications of intra-articular injections i.e. overlying soft tissue sepsis, bacteremia, anatomic inaccessibility, an uncooperative patient, articular instability, uncontrolled bleeding diathesis, etc.
5) Patients with contraindications of intra-articular HMW HA i.e. allergy to a visco-supplementation solution.

Assessment Criteria :

1) Pain & functional status components of the Western Ontario and McMaster Universities (WOMAC) scale,
2) VAS score and
3) 50 feet walktime

These were measured at baseline, 3 and 6 weeks post intervention.

Result Analysis: Significant improvement was found in patients who were treated with HMW HA injections ($p<0.05$). However, for the group which was treated with MMW HA, the improvement was not significant as the results yielded $p> 0.05$.

Conclusion : The results of the study indicated that the group treated with HMW HA showed better results compared to the group treated with MMW HA.

Abstract of National Mid Term CME 2011, Kolkata

Review of result of reconstructive surgeries in claw hand in leprosy cured patient

Vinod Prasad,
Assistant Professor, PMR Department, Patna Medical College

OBJECTIVE: Leprosy, though claimed to be cured, is yet prevalent in some parts of country, especially Bihar, Jharkhand. Cases do come with deformities of hands and feet, though leprosy disease itself cured. To improve functional result and lead a socially integrated and respectable life, we operated such cases of claw hand deformities.

MATERIALS & METHODS: We select the cases reporting to PMR OPD Deptt. Patna Medical College & hospital. Cases were referred from Primary Health Centre, District Hospitals and Skin department. We selected only those cases who have taken full course of MDT and who were otherwise fit for tendon transfer.

After a good period of pre-operative exercise to strengthen F.D.S of middle/ ring fingers, we operated generally under regional anaesthesia and esmarch tourniquet. We transferred flexor digitorum sublimis of middle finger to flexor pulleys of all the four fingers for claw hand. For opponensplasty, we transferred FDS of ring finger to exert effect of abduction and opposition. Postoperatively the hand was immobilised in P.O.P cast for three weeks. After that stiches removed, exercise started and fingers were kept in cylinder cast for further 2-3 weeks.

RESULTS: In most case unilateral upper limb was involved (78%). Least no (2.6%) was involved of both upper and lower limb. In upper limb, total claw i.e.(affection of ulnar and median nerves) was 7.6%. Postoperatively at the end of 24 months result were good (35%), workable (32%), excellent (12.6%), and poor (11.3%). Criteria were as suggested by DIFT. Commonest complication was flexion of PIP joint of finger. For this we used finger cylinder cast/ orthoses for longer period.

CONCLUSION: These neglected patients of post-Hansen's claw hand deformity certainly need care at tertiary treatment level. Apart from cosmetic look, ADL activities and functional gain has been achieved markedly. This helps patient attend and participated in various social activities.

Management of a case of spinal cord injury with flexor spasm and spasticity: what is appropriate technology?

*K Wangjam**

Introduction: Spinal cord injury is associated with various forms of hypertonia, including flexor spasm and spasticity. Hypertonia has to be treated if it interferes with the treatment programme, function or causes complications. Out of several methods of intervention, it is important to decide what is the most appropriate for a case.

Case: Fifteen years old male who suffered from # dislocation of C5 over C6 with incomplete C5 tetraplegia following injury due to fall from height on 18.10.10 is presented to illustrate the problem. He belonged to rural background and low economic status.

He was treated elsewhere before attending PMR on 10.01.11. He had severe spasticity and flexor spasm affecting both lower limbs (grade III to IV). In addition to the above, he had 3 major maltreatment related problems: (i) Grade VI sacral and left trochanteric sore. (ii) Penoscortal fistula. (iii) Effects of decompensation.

Results: Oral baclofen was tried for 3 weeks with incremental doses from 15 mg daily to 45 mg daily in divided doses. On the failure of this pharmacological intervention, injection phenol aqueous solution for motor point block and nerve block was performed on several sessions for different muscles and nerves. Video to record the change from pre-injection grade IV to grade I postinjection will demonstrate the effect. A new technique of injection of iliopsoas will be shown.

Discussion: Surgical intervention options are selective dorsal rhizotomy (SDR), peripheral orthopaldic procedures, like single event multiple level (SEML) type of surgery or/and neurectomies were not considered as the neurological status was evolving. Current status of these procedures reviewed.

Interventions which have temporary or reversible effect will be most suited for the case. Of which, intrathecal baclofen (ITB) would have been most appropriate. Cost

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and high-end technology is out of reach for a patient like him. Other alternative would have been low-end technology product like multiple sites Botox injection would have served as the second best. But the cost is absolutely forbidding. Recent status of these procedures will be given.

Conclusion: Selection of method of reducing hypertonia in SCI is not enough; most important is the appropriate technology for a case.

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EXCLUSION CRITERIA :

(i) Structural congenital vertebral anomalies
(ii) Associated PIVD/ spondylolisthesis
(iii) Spondylo-arthropathy
(iv) Unable to give consent
(v) Bleeding diatheses
(vi) Contra-indication of facet joint block/ UST

SAMPLE SIZE : 60 patients

MATERIALS and METHODS : Patients with facet arthropathy of L4/ L5 attended in PMR OPD of NRSMCH &SSKM IPGMER who already received 2 weeks of conservative treatment with orthoses, NSAID and exercise. Patients were divided randomly into 2 groups after taking consent from patients. Group A received facet joint block and group B received a course of UST. Follow-up were done on 0, 3weeks, 6 weeks.

ASSESSMENT CRITERIA: VAS, OSWESTRY INDEX (pain, disability)

RESULT ANALYSIS: Using SPSS software

DISCUSSION: Comparison of the reduction of pain and disability between the conservative treatment and the facet joint block group showed that there is statistically significant improvement (p value < 0.05) in those patients treated with facet joint block. UST showed improvement without statistical significance.

CONCLUSION: Facet joint block is definitely helpful in treatment of L4/L5 facet arthropathy.

KEY WORDS: Facet joint arthropathy, UST, Facet joint injection.

Abstract

Comparison of anterior and posterior ankle foot orthoses in foot drop patients by metabolic analysis

*Harleen Uppal, Gita Handa, U Singh, S Wadhwa, S L Yadav, R M Pandey**

OBJECTIVE: This is a preliminary study being conducted to investigate the changes and compare them in terms of metabolic equivalent, VO_2, VCO_2 and gait patterns in foot drop patients with anterior and posterior ankle foot orthoses.

STUDY DESIGN: The subject group comprises 20 unilateral foot drop patients who can walk independently or with a cane, after obtaining clearance from the Ethics Committee. Only patients with a spasticity score of <2 as per the Modified Ashworth Scale are being included in the study. A cross-over study is being conducted. Metabolic analysis and gait analysis of the patients is carried out while wearing anterior and posterior ankle foot orthoses separately using START 2000M portable metabolic analyser system and the Zebris Gait Analysis System respectively. The study also includes a subjective questionnaire after 1 month to ask the patient's preference. The entire study is being conducted in the out patient department of Physical Medicine and Rehabilitation, All India Institute of Medical Sciences.

RESULTS: In 8 patients till now we have seen a decrease in metabolic equivalent in patients wearing anterior ankle foot orthosis as compared to posterior ankle foot orthosis while there were no significant changes in gait analysis between the two.

CONCLUSION: The study concluded that wearing anterior ankle foot orthosis was better metabolically than posterior ankle foot orthosis.

*Department of Physical Medicine and Rehabilitation, All India Institute of Medical Sciences. Department of Biostatistics, All India Institute of Medical Sciences

Burden and stress in care-givers of children with cerebral palsy

Ramita Sardana, S L Yadav, U Singh, Sanjay Wadhwa, Gita Handa, Manju Mehta, R M Pandey***

Study Design : Descriptive study.

Objective : The purpose of this descriptive research was to examine caregiver burden and to investigate the predicting power of caregiver's age, family income, care giver's health status etc. on stress and burden of care-

Abstract

givers of children with cerebral palsy.

Material and method : The study sample consisted of 65 primary care-givers of children with cerebral palsy aged 6 months to 10 years. Two scales were used, DAS scale and care-giver burden scale. Data were collected by questionnaires. Descriptive statistics and multiple regression were used for data analysis.

Results : The results revealed that emotional burden on care-givers of children with cerebral palsy was moderate, financial burden was low and physical and social burden were low to moderate.

Conclusion: From this study it is concluded that care - givers of children with cerebral palsy experience burden and stress. These findings suggest that doctors should provide intervention to increase the care-giver's skill in providing care and coping, enhance support networks and encourage and promote the health and well being of care-givers, so that care-givers can effectively and efficiently care for their children with cerebral palsy.

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A study of effects of intervention of botulinum toxin A on lower limb in children with spastic cerebral palsy

Raj Kumar, S Wadhwa, U Singh, S L Yadav

STUDY DESIGN : Prospective study

OBJECTIVE : Analysis of clinical gait pattern, change in spasticity and range of motion cerebral palsy patient with spastic lower limb muscle after injecting botulinum toxin- A.

MATERIAL AND METHODS : 28 children (18 males and 10 females) with spastic CP had problems in normal walking, aged 2–9 years (mean age 4.6 years), consecutively treated in the PMR department over a 20-month period, were prospectively followed-up and clinically assessed pre- and post-treatment (at 2 weeks and 2 months) both objectively and subjectively. Objective parameter included gait parameters – Stride length, cadence, velocity, step length, base of support; active range of motion (ROM), Passive ROM (measured by goniometry) and grading of muscle spasticity on Modified Ashworth scale. Subjective assessment were questionnaire in terms of comfort, ease of care, perineal hygiene,

Abstract

walking. Injections were performed using clinical palpatory method on OPD basis. All patients received BTX-A injections, followed with physical and occupational therapy and orthosis as needed.

RESULTS : Significant improvement was achieved for spasticity reduction in gastrocnemius ($p< 0.001$), hamstring and adductor ($p=0.050$), ankle AROM and PROM ($p< 0.001$) , active knee extension ($p=0.009$), popliteal angle ($p=0.015$) and % left and right foot contact ($p< 0.001$), whereas non-significant change observed in step length, cadence, velocity , stride length and base of support. Parents felt subjective improvement in >90% of cases.

CONCLUSION : Botulinum toxin- A injection of the lower limb muscles is established as effective in the treatment of spastic equinus/crouching/scissoring in patients with cerebral palsy. The treatment was feasible and easily implemented. Botulinum toxin- A injections were well tolerated, yielded no serious treatment-related adverse events.

Pachydermadactyly

Sumalatha K B, Dheeraj A, U Singh

A 23-year male, student from Delhi, presented with swelling of small joints of both hands for 3 years. There was no history of pain, fever, early morning stiffness, restriction of joint range of motion, difficulty with activities of daily living. There was no history of similar complaints in the past. On examination, there was no erythema, increased temperature, or tenderness. Swelling was soft in consistency and there was no restriction of joint range of motion. His lab investigations including complete haemogram and RF were within normal limits. B/L hand x-rays showed only soft tissue swelling around PIP joints of medial four fingers. There was no joint space reduction, erosions or peri-articular osteopenia. He had been treated with DMARDs and steroids (for short duration) previously with no improvement or worsening of symptoms. These features are consistent with diagnosis of pachydermadactyly, which is a rare distinct form of fibromatosis characterised by dense fibrosis and fibroblastic proliferation around one or more proximal interphalangeal joints. It usually affects the medial, lateral and dorsal aspects of proximal interphalangeal joints of digits II-V. It is a benign condition that mimics rheumatological disorders like rheumatoid arthritis, psoriatic arthritis, etc. We present a case report of pachydermadactyly and comment on the available literature as a benign condition like this should not be overly treated.

Department of PMR, AIIMS, New Delhi
Dept of PMR, AIIMS, New Delhi

A comparative study of efficacy of intra-articular injections of a single dose high molecular weight hyaluronic acid (HMW HA) versus 3 doses of mid molecular weight hyaluronic acid (MMW HA) in OAknee

A Banerjee, T Ahmed, P P Das, R Pramanik, P Das, A Palit

Objective : This comparative study investigated the efficacy of intraarticular injections of a single dose HMW HA versus 3 doses of MMW HA on knee osteo-arthritis (OA).

Study Design : Prospective randomized experimental study.

Study Place : OPD of Deptt. of PM&R, IPGME&R, Kolkata.

Study Duration : 3 months.

Study Sample : 40 patients. In each group twenty subjects with OA knee were injected with high and mid molecular weigh HA.

Methodology :

Inclusion criteria:

1) All patients with primary osteo-arthritis knee.

Abstract

2) Grade two or grade three osteo-arthritis knee.

Exclusion criteria:

1) All patients with secondary osteo-arthritis knee.
2) Grade one or grade four osteo-arthritis knee.
3) Patients with gross ligamental instability.
4) Patients with contraindications of intra-articular injections i.e. overlying soft tissue sepsis, bacteremia, anatomic inaccessibility, an uncooperative patient, articular instability, uncontrolled bleeding diathesis, etc.
5) Patients with contraindications of intra-articular HMW HA i.e. allergy to a visco-supplementation solution.

Assessment Criteria :

1) Pain & functional status components of the Western Ontario and McMaster Universities (WOMAC) scale,
2) VAS score and
3) 50 feet walktime

These were measured at baseline, 3 and 6 weeks post intervention.

Result Analysis: Significant improvement was found in patients who were treated with HMW HA injections ($p<0.05$). However, for the group which was treated with MMW HA, the improvement was not significant as the results yielded $p> 0.05$.

Conclusion : The results of the study indicated that the group treated with HMW HA showed better results compared to the group treated with MMW HA.

Abstract of National Mid Term CME 2011, Kolkata

Review of result of reconstructive surgeries in claw hand in leprosy cured patient

Vinod Prasad,
Assistant Professor, PMR Department, Patna Medical College

OBJECTIVE: Leprosy, though claimed to be cured, is yet prevalent in some parts of country, especially Bihar, Jharkhand. Cases do come with deformities of hands and feet, though leprosy disease itself cured. To improve functional result and lead a socially integrated and respectable life, we operated such cases of claw hand deformities.

MATERIALS & METHODS: We select the cases reporting to PMR OPD Deptt. Patna Medical College & hospital. Cases were referred from Primary Health Centre, District Hospitals and Skin department. We selected only those cases who have taken full course of MDT and who were otherwise fit for tendon transfer.

After a good period of pre-operative exercise to strengthen F.D.S of middle/ ring fingers, we operated generally under regional anaesthesia and esmarch tourniquet. We transferred flexor digitorum sublimis of middle finger to flexor pulleys of all the four fingers for claw hand. For opponensplasty, we transferred FDS of ring finger to exert effect of abduction and opposition. Postoperatively the hand was immobilised in P.O.P cast for three weeks. After that stiches removed, exercise started and fingers were kept in cylinder cast for further 2-3 weeks.

RESULTS: In most case unilateral upper limb was involved (78%). Least no (2.6%) was involved of both upper and lower limb. In upper limb, total claw i.e.(affection of ulnar and median nerves) was 7.6%. Postoperatively at the end of 24 months result were good (35%), workable (32%), excellent (12.6%), and poor (11.3%). Criteria were as suggested by DIFT. Commonest complication was flexion of PIP joint of finger. For this we used finger cylinder cast/ orthoses for longer period.

CONCLUSION: These neglected patients of post-Hansen's claw hand deformity certainly need care at tertiary treatment level. Apart from cosmetic look, ADL activities and functional gain has been achieved markedly. This helps patient attend and participated in various social activities.

Management of a case of spinal cord injury with flexor spasm and spasticity: what is appropriate technology?

*K Wangjam**

Introduction: Spinal cord injury is associated with various forms of hypertonia, including flexor spasm and spasticity. Hypertonia has to be treated if it interferes with the treatment programme, function or causes complications. Out of several methods of intervention, it is important to decide what is the most appropriate for a case.

Case: Fifteen years old male who suffered from # dislocation of C5 over C6 with incomplete C5 tetraplegia following injury due to fall from height on 18.10.10 is presented to illustrate the problem. He belonged to rural background and low economic status.

He was treated elsewhere before attending PMR on 10.01.11. He had severe spasticity and flexor spasm affecting both lower limbs (grade III to IV). In addition to the above, he had 3 major maltreatment related problems: (i) Grade VI sacral and left trochanteric sore. (ii) Penoscortal fistula. (iii) Effects of decompensation.

Results: Oral baclofen was tried for 3 weeks with incremental doses from 15 mg daily to 45 mg daily in divided doses. On the failure of this pharmacological intervention, injection phenol aqueous solution for motor point block and nerve block was performed on several sessions for different muscles and nerves. Video to record the change from pre-injection grade IV to grade I postinjection will demonstrate the effect. A new technique of injection of iliopsoas will be shown.

Discussion: Surgical intervention options are selective dorsal rhizotomy (SDR), peripheral orthopaldic procedures, like single event multiple level (SEML) type of surgery or/and neurectomies were not considered as the neurological status was evolving. Current status of these procedures reviewed.

Interventions which have temporary or reversible effect will be most suited for the case. Of which, intrathecal baclofen (ITB) would have been most appropriate. Cost

Abstract

and high-end technology is out of reach for a patient like him. Other alternative would have been low-end technology product like multiple sites Botox injection would have served as the second best. But the cost is absolutely forbidding. Recent status of these procedures will be given.

Conclusion: Selection of method of reducing hypertonia in SCI is not enough; most important is the appropriate technology for a case.

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* Professor & Head. PMR.
RIMS, Imphal

Integrated and challenging rehabilitation improves span and quality of life in SCI

M M Ghatak
(Founder & In-charge Medical Rehab Center, Kolkata)

Rehab not only improves quality of life, but also gives years to the life in SCI. Among 526 cases of SCI patients, rehabilitated as indoor basis (2 months to 14 months stay) in medical rehab centre, Kolkata a classical case report is given here.

Mr. X , a case of D12 # with complete paraplagia, after pedicle screw fixation was admitted for rehab with very poor GC , emaciated stature, blackish and shrunken eyes, severe UTI and fever,catheterised bladder, big sacral stage III pressure sore, poor nutritional background , constipated bowel and complete motor and sensory loss below the level of injury. The entire ailment compounded with mental depression.

Rehab started with tackling the severe medical illness. Medical experts, PMR and subspecialities (PT, OT, psychotherapist, nutritionist) were involved. Superspeciality teams consisted of pressure sore team (plastic surgeon, dressor attendant, sister and nutritionist), physical rehab team (PMR, PT, OT, orthotist) , Psycho Rehab team (PMR, psychotherapist, psychiatrist, attendant, sister), uro rehab team (urologist, RMO, sister, PMR), ortho team (orthopaedician, RMO, PMR, dressure) started working

He passed through series of problems as - H.O left hip – surgically removed for functional sitting, bedsore after recognisable healing – flap and skin grafting done, mild DVT – treated with LMWX and warfarin which induced increase PT and INR and bleeding, managed with FFP and conservatives. Mental depression led him to attempting suicide and psycho rehab and medicine actively dealt the situation, after urodynamic study CIC started and practised successfully, muscular bulk and physical strength and fitness came after control of all medical events and monitoring the nutrition scientifically and eventually. Wheelchair training, transfer techniques etc trained, home modification guidelines and vocational assessment and guidelines supplied to the patient A 13 months challenging rehab management successfully sent the patient at home.

PMR, the team leader, in true sense the doner of a bright positive life with increasing survival of a patient, gains positive scientific satisfaction than any other speciality and PMR speciality would find their knowledge not stuck and struggled by the encroachment of other specialists.

Closed phenol neurolysis and tibial neurectomy for gastrosoleus spasticity reduction and improvement of ambulation – a cohort study

Javed Anees*, T K Vasudevan**, S Abdul Gafoor***

Objective:- To compare the effects of closed phenol neurolysis and tibial neurectomy in decreasing spasticity and improving ambulation in patients with spastic equinus.

Design:- Cohort study

Setting: - Inpatients admitted in PM&R department, Calicut Medical College, Kerala.

Abstract

Study period: From January1 to July 31.

Method: - Patients with spasticity grade 2 and more were treated with peripheral nerve phenol block after nerve localisation with stimulator and posterior tibial neurectomy. Evaluation included clinical assessment scale of spasticity (modified Ashworth scale – MAS), FIM scale for transfer, Walking index for SCI.

Scoring of MAS and FIM, WISCI done 1 week, 3weeks and 6 weeks, 12 weeks after interventions.

Results: - Both groups showed significant reduction in spasticity and improvement in ambulation; more reduction of spasticity was observed with tibial neurotomy. Final results await the completion of study period.

Conclusion: -Current trend shows more favourable result in reduction of spasticity of tibial neurotomy and final results are being awaited.

*Junior Resident
**Assistant Professor
***Professor and HOD- Department of PM&R, Calicut Medical College

A study of effects of home based exercise therapy on spinal mobility, fatigue, quality of life, disease activity and functional capacity in patients suffering from ankylosing spondylitis

Prajna Ranjani M, Sanjay Wadhwa, U Singh, Uma Kumar, R M Pandey***

Objective: To study the effects of home based exercise therapy on spinal mobility, functional capacity, daily activity, level of disease activity, extent of sense of well being, quality of life, fatigue, in patients of ankylosing spondylitis.

Material and Method : A prospective study conducted at PMR department, AIIMS, on 33 consenting patients of Ankylosing spondylitis, who fulfilled Modified New York criteria which included 31 males, 2 females, aged between 16 and 65 years. NAAS set of exercises along with deep breathing exercise was given for a period of 3 months. Compliance chart and tablet count chart were given to the patients. Patients were followed up every 6 weeks. Bath ankylosing spondylitis disease activity index (BASDAI), bath ankylosing spondylitis functional index (BASFI),bath ankylosing spondylitis metrology index (BASMI), bath ankylosing spondylitis global index (BAS-G), multidimentional assessment of fatigue (MAF), Ankylosing spondylitis quality of life (ASQoL) scales were administered to measure disease activity, functional status, spinal mobility, sense of well being, fatigue levels and quality of life in patients before and after exercise therapy.

Results : Statistically significant changes in median value of following parameters were obtained, BASDAI from 4.9 to 3.3 ($p<0.0007$), BASFI 4.4 to 3.4 ($p<0.004$), BASG 6 to 4.5 ($p<0.0005$), MAF 65.5 to 50 ($p<0.0004$), ASQoL 12 to 8 ($p<0.0088$) and no change in BASMI ($p<0.0813$).

Conclusion : Home based exercise therapy improved the sense of well being, quality of life, fatigue levels, and improvement in activities of daily living and reduce disease activity in patients with Ankylosing Spondylitis under study. Not much change in spinal mobility was found.

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*Additional Professor, Dept. of Medicine (Rheumatology Unit), AIIMS
** Professor & Head, Dept of Biostatistics, AIIMS

Assessment of total contact casting in diabetic neuropathic foot ulcers

A Basak, T Ahmed, S Mishra, P P Das, A Palit, R N Haldar

OBJECTIVE : To determine the outcome of diabetic neuropathic foot ulcers treated with total contact casting (TCC) in terms of duration to heal and percentage of ulcers healed based on improvement of Wagner's grading.

Abstract

STUDY DESIGN : Prospective Clinical Trial.

SAMPLE SIZE : 30 patients.

PLACE OF STUDY : Department of Physical Medicine & Rehabilitation,IPGME & R,SSKM Hospital,Kolkata.

DURATION OF STUDY :6 months.

INCLUSION CRITERIA : Diabetic neuropathic foot ulcers upto grade 2 of Wagner's classification treated with local dressing, antibiotic, orthosis but with no improvement.

EXCLUSION CRITERIA :

(1) Patients unwilling to give consent.

(2) Active or acute deep infection, sepsis or gangrene.

(3) Patients unable to comply with follow-up visits or wearing precautions.

MATERIALS AND METHODS :

After selection of the patients based on inclusion and exclusion criteria,ulcers were debrided off under aseptic condition and total contact casting was applied.Total contact casting was removed weekly and was done again if necessary for the maximum period of 6 weeks or till healing.Cases were labelled as cast failure when there was no improvement of Wagner's grading in 6 weeks.Main outcome measures were duration to heal and improvement of Wagner's grading.

RESULTS : Twenty patients were males and 10 patients were females; 90% patients (27 patients) responded to total contact casting in 6 weeks which was statistically significant ($p < 0.05$); 10% cases(3 patients) were labelled as cast failure.Among 27 responders, in 20 patients (74.07%) ulcers took an average of 4 weeks to heal completely.In 14.81% patients ulcers healed completely in 6 weeks and in 11.11% patients ulcers healed completely in 2 weeks.Among the responders 66.66% patients had ulcers in forefoot, 22.22% patients had ulcers in midfoot and 11.11% patients had ulcers in hindfoot. Among the cast failure cases 66.66% patients had ulcers in hindfoot.

DISCUSSION :A study on the similar topic has been found in the following reference – J.Coll Physicians Sur Pak. 2008 Nov;18(11):695-8.They found total contact casting as an effective treatment modality for diabetic neuropathic foot ulcers.

CONCLUSION : Total contact casting is an effective treatment modality for neuropathic diabetic foot ulcers with Wagner's grade up to 2.

Effect of phenol neurolysis in the treatment of spasticity:a Calicut experience

Pradeep Kumar Kalathil, T K Vasudevan**, S Abdul Gafoor****

Objective: To assess the decrease in spasticity after phenol neurolysis.

Design: Before – after trial with 6 months follow-up.

Setting: Out paients and in patients attending PMR department at Calicut Medical college, Kerala from January1 to June 30, 2011.

Materials and Methods: Patients with spasticity grade 2 and more were treated with peripheral nerve phenol block after nerve localisation with nerve stimulator. Evaluation included clinical assessment of spasticity (Ashwaorth Scale) and FIM scoring after 1 week, 3 weeks, and 6 weeks and thereafter monthly.

Results: Spasticity decreased after neurolysis . Significant functional improvement was also noted.

Conclusion: Phenol neurolysis is a useful and cost effective treatment for spasticity.

*Junior Resident

**Assistant Professor

***Professor and HOD- Department of PM&R, Calicut Medical College

Abstract

Comperative study between the efficacy of facet joint block and ultrasound therapy in L4/L5 facet arthropathy

T Ahmed, A Basak, A Banerjee, S Iswarari, R Pramanik, P Das

STUDY DESIGN: Prospective randomised control study

STUDY PLACE: NRSMC& SSKM, IPGMER

INCUSION CRITERIA:

(i) L_4/L_5 Facet arthropathy who failed 2 weeks conservative treatment

(ii) Clinical symptoms and signs of facet arthropathy

EXCLUSION CRITERIA :

(i) Structural congenital vertebral anomalies
(ii) Associated PIVD/ spondylolisthesis
(iii) Spondylo-arthropathy
(iv) Unable to give consent
(v) Bleeding diatheses
(vi) Contra-indication of facet joint block/ UST

SAMPLE SIZE : 60 patients

MATERIALS and METHODS : Patients with facet arthropathy of L4/ L5 attended in PMR OPD of NRSMCH &SSKM IPGMER who already received 2 weeks of conservative treatment with orthoses, NSAID and exercise. Patients were divided randomly into 2 groups after taking consent from patients. Group A received facet joint block and group B received a course of UST. Follow-up were done on 0, 3weeks, 6 weeks.

ASSESSMENT CRITERIA: VAS, OSWESTRY INDEX (pain, disability)

RESULT ANALYSIS: Using SPSS software

DISCUSSION: Comparison of the reduction of pain and disability between the conservative treatment and the facet joint block group showed that there is statistically significant improvement (p value < 0.05) in those patients treated with facet joint block. UST showed improvement without statistical significance.

CONCLUSION: Facet joint block is definitely helpful in treatment of L4/L5 facet arthropathy.

KEY WORDS: Facet joint arthropathy, UST, Facet joint injection.

Abstract

Comparison of anterior and posterior ankle foot orthoses in foot drop patients by metabolic analysis

*Harleen Uppal, Gita Handa, U Singh, S Wadhwa, S L Yadav, R M Pandey**

OBJECTIVE: This is a preliminary study being conducted to investigate the changes and compare them in terms of metabolic equivalent, VO_2, VCO_2 and gait patterns in foot drop patients with anterior and posterior ankle foot orthoses.

STUDY DESIGN: The subject group comprises 20 unilateral foot drop patients who can walk independently or with a cane, after obtaining clearance from the Ethics Committee. Only patients with a spasticity score of <2 as per the Modified Ashworth Scale are being included in the study. A cross-over study is being conducted. Metabolic analysis and gait analysis of the patients is carried out while wearing anterior and posterior ankle foot orthoses separately using START 2000M portable metabolic analyser system and the Zebris Gait Analysis System respectively. The study also includes a subjective questionnaire after 1 month to ask the patient's preference. The entire study is being conducted in the out patient department of Physical Medicine and Rehabilitation, All India Institute of Medical Sciences.

RESULTS: In 8 patients till now we have seen a decrease in metabolic equivalent in patients wearing anterior ankle foot orthosis as compared to posterior ankle foot orthosis while there were no significant changes in gait analysis between the two.

CONCLUSION: The study concluded that wearing anterior ankle foot orthosis was better metabolically than posterior ankle foot orthosis.

*Department of Physical Medicine and Rehabilitation, All India Institute of Medical Sciences. Department of Biostatistics, All India Institute of Medical Sciences

Burden and stress in care-givers of children with cerebral palsy

Ramita Sardana, S L Yadav, U Singh, Sanjay Wadhwa, Gita Handa, Manju Mehta, R M Pandey***

Study Design : Descriptive study.

Objective : The purpose of this descriptive research was to examine caregiver burden and to investigate the predicting power of caregiver's age, family income, care giver's health status etc. on stress and burden of care-

Abstract

givers of children with cerebral palsy.

Material and method : The study sample consisted of 65 primary care-givers of children with cerebral palsy aged 6 months to 10 years. Two scales were used, DAS scale and care-giver burden scale. Data were collected by questionnaires. Descriptive statistics and multiple regression were used for data analysis.

Results : The results revealed that emotional burden on care-givers of children with cerebral palsy was moderate, financial burden was low and physical and social burden were low to moderate.

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*Department of Psychiatry, AIIMS, New Delhi.
** Department of Biostatistics, AIIMS, New Delhi.

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Raj Kumar, S Wadhwa, U Singh, S L Yadav

STUDY DESIGN : Prospective study

OBJECTIVE : Analysis of clinical gait pattern, change in spasticity and range of motion cerebral palsy patient with spastic lower limb muscle after injecting botulinum toxin- A.

MATERIAL AND METHODS : 28 children (18 males and 10 females) with spastic CP had problems in normal walking, aged 2–9 years (mean age 4.6 years), consecutively treated in the PMR department over a 20-month period, were prospectively followed-up and clinically assessed pre- and post-treatment (at 2 weeks and 2 months) both objectively and subjectively. Objective parameter included gait parameters – Stride length, cadence, velocity, step length, base of support; active range of motion (ROM), Passive ROM (measured by goniometry) and grading of muscle spasticity on Modified Ashworth scale. Subjective assessment were questionnaire in terms of comfort, ease of care, perineal hygiene,

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walking. Injections were performed using clinical palpatory method on OPD basis. All patients received BTX-A injections, followed with physical and occupational therapy and orthosis as needed.

RESULTS : Significant improvement was achieved for spasticity reduction in gastrocnemius ($p< 0.001$), hamstring and adductor ($p=0.050$), ankle AROM and PROM ($p< 0.001$) , active knee extension ($p=0.009$), popliteal angle ($p=0.015$) and % left and right foot contact ($p< 0.001$), whereas non-significant change observed in step length, cadence, velocity , stride length and base of support. Parents felt subjective improvement in >90% of cases.

CONCLUSION : Botulinum toxin- A injection of the lower limb muscles is established as effective in the treatment of spastic equinus/crouching/scissoring in patients with cerebral palsy. The treatment was feasible and easily implemented. Botulinum toxin- A injections were well tolerated, yielded no serious treatment-related adverse events.

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Department of PMR, AIIMS, New Delhi
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A Banerjee, T Ahmed, P P Das, R Pramanik, P Das, A Palit

Objective : This comparative study investigated the efficacy of intraarticular injections of a single dose HMW HA versus 3 doses of MMW HA on knee osteo-arthritis (OA).

Study Design : Prospective randomized experimental study.

Study Place : OPD of Deptt. of PM&R, IPGME&R, Kolkata.

Study Duration : 3 months.

Study Sample : 40 patients. In each group twenty subjects with OA knee were injected with high and mid molecular weigh HA.

Methodology :

Inclusion criteria:

1) All patients with primary osteo-arthritis knee.

Abstract

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1) All patients with secondary osteo-arthritis knee.
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3) Patients with gross ligamental instability.
4) Patients with contraindications of intra-articular injections i.e. overlying soft tissue sepsis, bacteremia, anatomic inaccessibility, an uncooperative patient, articular instability, uncontrolled bleeding diathesis, etc.
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Assessment Criteria :

1) Pain & functional status components of the Western Ontario and McMaster Universities (WOMAC) scale,
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These were measured at baseline, 3 and 6 weeks post intervention.

Result Analysis: Significant improvement was found in patients who were treated with HMW HA injections ($p<0.05$). However, for the group which was treated with MMW HA, the improvement was not significant as the results yielded $p> 0.05$.

Conclusion : The results of the study indicated that the group treated with HMW HA showed better results compared to the group treated with MMW HA.

Abstract of National Mid Term CME 2011, Kolkata

Review of result of reconstructive surgeries in claw hand in leprosy cured patient

Vinod Prasad,
Assistant Professor, PMR Department, Patna Medical College

OBJECTIVE: Leprosy, though claimed to be cured, is yet prevalent in some parts of country, especially Bihar, Jharkhand. Cases do come with deformities of hands and feet, though leprosy disease itself cured. To improve functional result and lead a socially integrated and respectable life, we operated such cases of claw hand deformities.

MATERIALS & METHODS: We select the cases reporting to PMR OPD Deptt. Patna Medical College & hospital. Cases were referred from Primary Health Centre, District Hospitals and Skin department. We selected only those cases who have taken full course of MDT and who were otherwise fit for tendon transfer.

After a good period of pre-operative exercise to strengthen F.D.S of middle/ ring fingers, we operated generally under regional anaesthesia and esmarch tourniquet. We transferred flexor digitorum sublimis of middle finger to flexor pulleys of all the four fingers for claw hand. For opponensplasty, we transferred FDS of ring finger to exert effect of abduction and opposition. Postoperatively the hand was immobilised in P.O.P cast for three weeks. After that stiches removed, exercise started and fingers were kept in cylinder cast for further 2-3 weeks.

RESULTS: In most case unilateral upper limb was involved (78%). Least no (2.6%) was involved of both upper and lower limb. In upper limb, total claw i.e.(affection of ulnar and median nerves) was 7.6%. Postoperatively at the end of 24 months result were good (35%), workable (32%), excellent (12.6%), and poor (11.3%). Criteria were as suggested by DIFT. Commonest complication was flexion of PIP joint of finger. For this we used finger cylinder cast/ orthoses for longer period.

CONCLUSION: These neglected patients of post-Hansen's claw hand deformity certainly need care at tertiary treatment level. Apart from cosmetic look, ADL activities and functional gain has been achieved markedly. This helps patient attend and participated in various social activities.

Management of a case of spinal cord injury with flexor spasm and spasticity: what is appropriate technology?

*K Wangjam**

Introduction: Spinal cord injury is associated with various forms of hypertonia, including flexor spasm and spasticity. Hypertonia has to be treated if it interferes with the treatment programme, function or causes complications. Out of several methods of intervention, it is important to decide what is the most appropriate for a case.

Case: Fifteen years old male who suffered from # dislocation of C5 over C6 with incomplete C5 tetraplegia following injury due to fall from height on 18.10.10 is presented to illustrate the problem. He belonged to rural background and low economic status.

He was treated elsewhere before attending PMR on 10.01.11. He had severe spasticity and flexor spasm affecting both lower limbs (grade III to IV). In addition to the above, he had 3 major maltreatment related problems: (i) Grade VI sacral and left trochanteric sore. (ii) Penoscortal fistula. (iii) Effects of decompensation.

Results: Oral baclofen was tried for 3 weeks with incremental doses from 15 mg daily to 45 mg daily in divided doses. On the failure of this pharmacological intervention, injection phenol aqueous solution for motor point block and nerve block was performed on several sessions for different muscles and nerves. Video to record the change from pre-injection grade IV to grade I postinjection will demonstrate the effect. A new technique of injection of iliopsoas will be shown.

Discussion: Surgical intervention options are selective dorsal rhizotomy (SDR), peripheral orthopaldic procedures, like single event multiple level (SEML) type of surgery or/and neurectomies were not considered as the neurological status was evolving. Current status of these procedures reviewed.

Interventions which have temporary or reversible effect will be most suited for the case. Of which, intrathecal baclofen (ITB) would have been most appropriate. Cost

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and high-end technology is out of reach for a patient like him. Other alternative would have been low-end technology product like multiple sites Botox injection would have served as the second best. But the cost is absolutely forbidding. Recent status of these procedures will be given.

Conclusion: Selection of method of reducing hypertonia in SCI is not enough; most important is the appropriate technology for a case.

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* Professor & Head. PMR.
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Integrated and challenging rehabilitation improves span and quality of life in SCI

M M Ghatak
(Founder & In-charge Medical Rehab Center, Kolkata)

Rehab not only improves quality of life, but also gives years to the life in SCI. Among 526 cases of SCI patients, rehabilitated as indoor basis (2 months to 14 months stay) in medical rehab centre, Kolkata a classical case report is given here.

Mr. X , a case of D12 # with complete paraplagia, after pedicle screw fixation was admitted for rehab with very poor GC , emaciated stature, blackish and shrunken eyes, severe UTI and fever,catheterised bladder, big sacral stage III pressure sore, poor nutritional background , constipated bowel and complete motor and sensory loss below the level of injury. The entire ailment compounded with mental depression.

Rehab started with tackling the severe medical illness. Medical experts, PMR and subspecialities (PT, OT, psychotherapist, nutritionist) were involved. Superspeciality teams consisted of pressure sore team (plastic surgeon, dressor attendant, sister and nutritionist), physical rehab team (PMR, PT, OT, orthotist) , Psycho Rehab team (PMR, psychotherapist, psychiatrist, attendant, sister), uro rehab team (urologist, RMO, sister, PMR), ortho team (orthopaedician, RMO, PMR, dressure) started working

He passed through series of problems as - H.O left hip – surgically removed for functional sitting, bedsore after recognisable healing – flap and skin grafting done, mild DVT – treated with LMWX and warfarin which induced increase PT and INR and bleeding, managed with FFP and conservatives. Mental depression led him to attempting suicide and psycho rehab and medicine actively dealt the situation, after urodynamic study CIC started and practised successfully, muscular bulk and physical strength and fitness came after control of all medical events and monitoring the nutrition scientifically and eventually. Wheelchair training, transfer techniques etc trained, home modification guidelines and vocational assessment and guidelines supplied to the patient A 13 months challenging rehab management successfully sent the patient at home.

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Closed phenol neurolysis and tibial neurectomy for gastrosoleus spasticity reduction and improvement of ambulation – a cohort study

Javed Anees*, T K Vasudevan**, S Abdul Gafoor***

Objective:- To compare the effects of closed phenol neurolysis and tibial neurectomy in decreasing spasticity and improving ambulation in patients with spastic equinus.

Design:- Cohort study

Setting: - Inpatients admitted in PM&R department, Calicut Medical College, Kerala.

Abstract

Study period: From January1 to July 31.

Method: - Patients with spasticity grade 2 and more were treated with peripheral nerve phenol block after nerve localisation with stimulator and posterior tibial neurectomy. Evaluation included clinical assessment scale of spasticity (modified Ashworth scale – MAS), FIM scale for transfer, Walking index for SCI.

Scoring of MAS and FIM, WISCI done 1 week, 3weeks and 6 weeks, 12 weeks after interventions.

Results: - Both groups showed significant reduction in spasticity and improvement in ambulation; more reduction of spasticity was observed with tibial neurotomy. Final results await the completion of study period.

Conclusion: -Current trend shows more favourable result in reduction of spasticity of tibial neurotomy and final results are being awaited.

*Junior Resident
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A study of effects of home based exercise therapy on spinal mobility, fatigue, quality of life, disease activity and functional capacity in patients suffering from ankylosing spondylitis

Prajna Ranjani M, Sanjay Wadhwa, U Singh, Uma Kumar, R M Pandey***

Objective: To study the effects of home based exercise therapy on spinal mobility, functional capacity, daily activity, level of disease activity, extent of sense of well being, quality of life, fatigue, in patients of ankylosing spondylitis.

Material and Method : A prospective study conducted at PMR department, AIIMS, on 33 consenting patients of Ankylosing spondylitis, who fulfilled Modified New York criteria which included 31 males, 2 females, aged between 16 and 65 years. NAAS set of exercises along with deep breathing exercise was given for a period of 3 months. Compliance chart and tablet count chart were given to the patients. Patients were followed up every 6 weeks. Bath ankylosing spondylitis disease activity index (BASDAI), bath ankylosing spondylitis functional index (BASFI),bath ankylosing spondylitis metrology index (BASMI), bath ankylosing spondylitis global index (BAS-G), multidimentional assessment of fatigue (MAF), Ankylosing spondylitis quality of life (ASQoL) scales were administered to measure disease activity, functional status, spinal mobility, sense of well being, fatigue levels and quality of life in patients before and after exercise therapy.

Results : Statistically significant changes in median value of following parameters were obtained, BASDAI from 4.9 to 3.3 ($p<0.0007$), BASFI 4.4 to 3.4 ($p<0.004$), BASG 6 to 4.5 ($p<0.0005$), MAF 65.5 to 50 ($p<0.0004$), ASQoL 12 to 8 ($p<0.0088$) and no change in BASMI ($p<0.0813$).

Conclusion : Home based exercise therapy improved the sense of well being, quality of life, fatigue levels, and improvement in activities of daily living and reduce disease activity in patients with Ankylosing Spondylitis under study. Not much change in spinal mobility was found.

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*Additional Professor, Dept. of Medicine (Rheumatology Unit), AIIMS
** Professor & Head, Dept of Biostatistics, AIIMS

Assessment of total contact casting in diabetic neuropathic foot ulcers

A Basak, T Ahmed, S Mishra, P P Das, A Palit, R N Haldar

OBJECTIVE : To determine the outcome of diabetic neuropathic foot ulcers treated with total contact casting (TCC) in terms of duration to heal and percentage of ulcers healed based on improvement of Wagner's grading.

Abstract

STUDY DESIGN : Prospective Clinical Trial.

SAMPLE SIZE : 30 patients.

PLACE OF STUDY : Department of Physical Medicine & Rehabilitation,IPGME & R,SSKM Hospital,Kolkata.

DURATION OF STUDY :6 months.

INCLUSION CRITERIA : Diabetic neuropathic foot ulcers upto grade 2 of Wagner's classification treated with local dressing, antibiotic, orthosis but with no improvement.

EXCLUSION CRITERIA :

(1) Patients unwilling to give consent.

(2) Active or acute deep infection, sepsis or gangrene.

(3) Patients unable to comply with follow-up visits or wearing precautions.

MATERIALS AND METHODS :

After selection of the patients based on inclusion and exclusion criteria,ulcers were debrided off under aseptic condition and total contact casting was applied.Total contact casting was removed weekly and was done again if necessary for the maximum period of 6 weeks or till healing.Cases were labelled as cast failure when there was no improvement of Wagner's grading in 6 weeks.Main outcome measures were duration to heal and improvement of Wagner's grading.

RESULTS : Twenty patients were males and 10 patients were females; 90% patients (27 patients) responded to total contact casting in 6 weeks which was statistically significant ($p < 0.05$); 10% cases(3 patients) were labelled as cast failure.Among 27 responders, in 20 patients (74.07%) ulcers took an average of 4 weeks to heal completely.In 14.81% patients ulcers healed completely in 6 weeks and in 11.11% patients ulcers healed completely in 2 weeks.Among the responders 66.66% patients had ulcers in forefoot, 22.22% patients had ulcers in midfoot and 11.11% patients had ulcers in hindfoot. Among the cast failure cases 66.66% patients had ulcers in hindfoot.

DISCUSSION :A study on the similar topic has been found in the following reference – J.Coll Physicians Sur Pak. 2008 Nov;18(11):695-8.They found total contact casting as an effective treatment modality for diabetic neuropathic foot ulcers.

CONCLUSION : Total contact casting is an effective treatment modality for neuropathic diabetic foot ulcers with Wagner's grade up to 2.

Effect of phenol neurolysis in the treatment of spasticity:a Calicut experience

Pradeep Kumar Kalathil, T K Vasudevan**, S Abdul Gafoor****

Objective: To assess the decrease in spasticity after phenol neurolysis.

Design: Before – after trial with 6 months follow-up.

Setting: Out paients and in patients attending PMR department at Calicut Medical college, Kerala from January1 to June 30, 2011.

Materials and Methods: Patients with spasticity grade 2 and more were treated with peripheral nerve phenol block after nerve localisation with nerve stimulator. Evaluation included clinical assessment of spasticity (Ashwaorth Scale) and FIM scoring after 1 week, 3 weeks, and 6 weeks and thereafter monthly.

Results: Spasticity decreased after neurolysis . Significant functional improvement was also noted.

Conclusion: Phenol neurolysis is a useful and cost effective treatment for spasticity.

*Junior Resident

**Assistant Professor

***Professor and HOD- Department of PM&R, Calicut Medical College

Abstract

Comperative study between the efficacy of facet joint block and ultrasound therapy in L4/L5 facet arthropathy

T Ahmed, A Basak, A Banerjee, S Iswarari, R Pramanik, P Das

STUDY DESIGN: Prospective randomised control study

STUDY PLACE: NRSMC& SSKM, IPGMER

INCUSION CRITERIA:

(i) L_4/L_5 Facet arthropathy who failed 2 weeks conservative treatment

(ii) Clinical symptoms and signs of facet arthropathy

EXCLUSION CRITERIA :

(i) Structural congenital vertebral anomalies
(ii) Associated PIVD/ spondylolisthesis
(iii) Spondylo-arthropathy
(iv) Unable to give consent
(v) Bleeding diatheses
(vi) Contra-indication of facet joint block/ UST

SAMPLE SIZE : 60 patients

MATERIALS and METHODS : Patients with facet arthropathy of L4/ L5 attended in PMR OPD of NRSMCH &SSKM IPGMER who already received 2 weeks of conservative treatment with orthoses, NSAID and exercise. Patients were divided randomly into 2 groups after taking consent from patients. Group A received facet joint block and group B received a course of UST. Follow-up were done on 0, 3weeks, 6 weeks.

ASSESSMENT CRITERIA: VAS, OSWESTRY INDEX (pain, disability)

RESULT ANALYSIS: Using SPSS software

DISCUSSION: Comparison of the reduction of pain and disability between the conservative treatment and the facet joint block group showed that there is statistically significant improvement (p value < 0.05) in those patients treated with facet joint block. UST showed improvement without statistical significance.

CONCLUSION: Facet joint block is definitely helpful in treatment of L4/L5 facet arthropathy.

KEY WORDS: Facet joint arthropathy, UST, Facet joint injection.

Abstract

Comparison of anterior and posterior ankle foot orthoses in foot drop patients by metabolic analysis

*Harleen Uppal, Gita Handa, U Singh, S Wadhwa, S L Yadav, R M Pandey**

OBJECTIVE: This is a preliminary study being conducted to investigate the changes and compare them in terms of metabolic equivalent, VO_2, VCO_2 and gait patterns in foot drop patients with anterior and posterior ankle foot orthoses.

STUDY DESIGN: The subject group comprises 20 unilateral foot drop patients who can walk independently or with a cane, after obtaining clearance from the Ethics Committee. Only patients with a spasticity score of <2 as per the Modified Ashworth Scale are being included in the study. A cross-over study is being conducted. Metabolic analysis and gait analysis of the patients is carried out while wearing anterior and posterior ankle foot orthoses separately using START 2000M portable metabolic analyser system and the Zebris Gait Analysis System respectively. The study also includes a subjective questionnaire after 1 month to ask the patient's preference. The entire study is being conducted in the out patient department of Physical Medicine and Rehabilitation, All India Institute of Medical Sciences.

RESULTS: In 8 patients till now we have seen a decrease in metabolic equivalent in patients wearing anterior ankle foot orthosis as compared to posterior ankle foot orthosis while there were no significant changes in gait analysis between the two.

CONCLUSION: The study concluded that wearing anterior ankle foot orthosis was better metabolically than posterior ankle foot orthosis.

*Department of Physical Medicine and Rehabilitation, All India Institute of Medical Sciences. Department of Biostatistics, All India Institute of Medical Sciences

Burden and stress in care-givers of children with cerebral palsy

Ramita Sardana, S L Yadav, U Singh, Sanjay Wadhwa, Gita Handa, Manju Mehta, R M Pandey***

Study Design : Descriptive study.

Objective : The purpose of this descriptive research was to examine caregiver burden and to investigate the predicting power of caregiver's age, family income, care giver's health status etc. on stress and burden of care-

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givers of children with cerebral palsy.

Material and method : The study sample consisted of 65 primary care-givers of children with cerebral palsy aged 6 months to 10 years. Two scales were used, DAS scale and care-giver burden scale. Data were collected by questionnaires. Descriptive statistics and multiple regression were used for data analysis.

Results : The results revealed that emotional burden on care-givers of children with cerebral palsy was moderate, financial burden was low and physical and social burden were low to moderate.

Conclusion: From this study it is concluded that care - givers of children with cerebral palsy experience burden and stress. These findings suggest that doctors should provide intervention to increase the care-giver's skill in providing care and coping, enhance support networks and encourage and promote the health and well being of care-givers, so that care-givers can effectively and efficiently care for their children with cerebral palsy.

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A study of effects of intervention of botulinum toxin A on lower limb in children with spastic cerebral palsy

Raj Kumar, S Wadhwa, U Singh, S L Yadav

STUDY DESIGN : Prospective study

OBJECTIVE : Analysis of clinical gait pattern, change in spasticity and range of motion cerebral palsy patient with spastic lower limb muscle after injecting botulinum toxin- A.

MATERIAL AND METHODS : 28 children (18 males and 10 females) with spastic CP had problems in normal walking, aged 2–9 years (mean age 4.6 years), consecutively treated in the PMR department over a 20-month period, were prospectively followed-up and clinically assessed pre- and post-treatment (at 2 weeks and 2 months) both objectively and subjectively. Objective parameter included gait parameters – Stride length, cadence, velocity, step length, base of support; active range of motion (ROM), Passive ROM (measured by goniometry) and grading of muscle spasticity on Modified Ashworth scale. Subjective assessment were questionnaire in terms of comfort, ease of care, perineal hygiene,

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walking. Injections were performed using clinical palpatory method on OPD basis. All patients received BTX-A injections, followed with physical and occupational therapy and orthosis as needed.

RESULTS : Significant improvement was achieved for spasticity reduction in gastrocnemius ($p< 0.001$), hamstring and adductor ($p=0.050$), ankle AROM and PROM ($p< 0.001$) , active knee extension ($p=0.009$), popliteal angle ($p=0.015$) and % left and right foot contact ($p< 0.001$), whereas non-significant change observed in step length, cadence, velocity , stride length and base of support. Parents felt subjective improvement in >90% of cases.

CONCLUSION : Botulinum toxin- A injection of the lower limb muscles is established as effective in the treatment of spastic equinus/crouching/scissoring in patients with cerebral palsy. The treatment was feasible and easily implemented. Botulinum toxin- A injections were well tolerated, yielded no serious treatment-related adverse events.

Pachydermadactyly

Sumalatha K B, Dheeraj A, U Singh

A 23-year male, student from Delhi, presented with swelling of small joints of both hands for 3 years. There was no history of pain, fever, early morning stiffness, restriction of joint range of motion, difficulty with activities of daily living. There was no history of similar complaints in the past. On examination, there was no erythema, increased temperature, or tenderness. Swelling was soft in consistency and there was no restriction of joint range of motion. His lab investigations including complete haemogram and RF were within normal limits. B/L hand x-rays showed only soft tissue swelling around PIP joints of medial four fingers. There was no joint space reduction, erosions or peri-articular osteopenia. He had been treated with DMARDs and steroids (for short duration) previously with no improvement or worsening of symptoms. These features are consistent with diagnosis of pachydermadactyly, which is a rare distinct form of fibromatosis characterised by dense fibrosis and fibroblastic proliferation around one or more proximal interphalangeal joints. It usually affects the medial, lateral and dorsal aspects of proximal interphalangeal joints of digits II-V. It is a benign condition that mimics rheumatological disorders like rheumatoid arthritis, psoriatic arthritis, etc. We present a case report of pachydermadactyly and comment on the available literature as a benign condition like this should not be overly treated.

Department of PMR, AIIMS, New Delhi
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A comparative study of efficacy of intra-articular injections of a single dose high molecular weight hyaluronic acid (HMW HA) versus 3 doses of mid molecular weight hyaluronic acid (MMW HA) in OAknee

A Banerjee, T Ahmed, P P Das, R Pramanik, P Das, A Palit

Objective : This comparative study investigated the efficacy of intraarticular injections of a single dose HMW HA versus 3 doses of MMW HA on knee osteo-arthritis (OA).

Study Design : Prospective randomized experimental study.

Study Place : OPD of Deptt. of PM&R, IPGME&R, Kolkata.

Study Duration : 3 months.

Study Sample : 40 patients. In each group twenty subjects with OA knee were injected with high and mid molecular weigh HA.

Methodology :

Inclusion criteria:

1) All patients with primary osteo-arthritis knee.

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2) Grade two or grade three osteo-arthritis knee.

Exclusion criteria:

1) All patients with secondary osteo-arthritis knee.
2) Grade one or grade four osteo-arthritis knee.
3) Patients with gross ligamental instability.
4) Patients with contraindications of intra-articular injections i.e. overlying soft tissue sepsis, bacteremia, anatomic inaccessibility, an uncooperative patient, articular instability, uncontrolled bleeding diathesis, etc.
5) Patients with contraindications of intra-articular HMW HA i.e. allergy to a visco-supplementation solution.

Assessment Criteria :

1) Pain & functional status components of the Western Ontario and McMaster Universities (WOMAC) scale,
2) VAS score and
3) 50 feet walktime

These were measured at baseline, 3 and 6 weeks post intervention.

Result Analysis: Significant improvement was found in patients who were treated with HMW HA injections ($p<0.05$). However, for the group which was treated with MMW HA, the improvement was not significant as the results yielded $p> 0.05$.

Conclusion : The results of the study indicated that the group treated with HMW HA showed better results compared to the group treated with MMW HA.

Abstract of National Mid Term CME 2011, Kolkata

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Results : Statistically significant changes in median value of following parameters were obtained, BASDAI from 4.9 to 3.3 ($p<0.0007$), BASFI 4.4 to 3.4 ($p<0.004$), BASG 6 to 4.5 ($p<0.0005$), MAF 65.5 to 50 ($p<0.0004$), ASQoL 12 to 8 ($p<0.0088$) and no change in BASMI ($p<0.0813$).

Conclusion : Home based exercise therapy improved the sense of well being, quality of life, fatigue levels, and improvement in activities of daily living and reduce disease activity in patients with Ankylosing Spondylitis under study. Not much change in spinal mobility was found.

Department of Physical Medicine and Rehabilitation (P.M.R), AIIMS
*Additional Professor, Dept. of Medicine (Rheumatology Unit), AIIMS
** Professor & Head, Dept of Biostatistics, AIIMS

Assessment of total contact casting in diabetic neuropathic foot ulcers

A Basak, T Ahmed, S Mishra, P P Das, A Palit, R N Haldar

OBJECTIVE : To determine the outcome of diabetic neuropathic foot ulcers treated with total contact casting (TCC) in terms of duration to heal and percentage of ulcers healed based on improvement of Wagner's grading.

Abstract

STUDY DESIGN : Prospective Clinical Trial.

SAMPLE SIZE : 30 patients.

PLACE OF STUDY : Department of Physical Medicine & Rehabilitation,IPGME & R,SSKM Hospital,Kolkata.

DURATION OF STUDY :6 months.

INCLUSION CRITERIA : Diabetic neuropathic foot ulcers upto grade 2 of Wagner's classification treated with local dressing, antibiotic, orthosis but with no improvement.

EXCLUSION CRITERIA :

(1) Patients unwilling to give consent.

(2) Active or acute deep infection, sepsis or gangrene.

(3) Patients unable to comply with follow-up visits or wearing precautions.

MATERIALS AND METHODS :

After selection of the patients based on inclusion and exclusion criteria,ulcers were debrided off under aseptic condition and total contact casting was applied.Total contact casting was removed weekly and was done again if necessary for the maximum period of 6 weeks or till healing.Cases were labelled as cast failure when there was no improvement of Wagner's grading in 6 weeks.Main outcome measures were duration to heal and improvement of Wagner's grading.

RESULTS : Twenty patients were males and 10 patients were females; 90% patients (27 patients) responded to total contact casting in 6 weeks which was statistically significant ($p < 0.05$); 10% cases(3 patients) were labelled as cast failure.Among 27 responders, in 20 patients (74.07%) ulcers took an average of 4 weeks to heal completely.In 14.81% patients ulcers healed completely in 6 weeks and in 11.11% patients ulcers healed completely in 2 weeks.Among the responders 66.66% patients had ulcers in forefoot, 22.22% patients had ulcers in midfoot and 11.11% patients had ulcers in hindfoot. Among the cast failure cases 66.66% patients had ulcers in hindfoot.

DISCUSSION :A study on the similar topic has been found in the following reference – J.Coll Physicians Sur Pak. 2008 Nov;18(11):695-8.They found total contact casting as an effective treatment modality for diabetic neuropathic foot ulcers.

CONCLUSION : Total contact casting is an effective treatment modality for neuropathic diabetic foot ulcers with Wagner's grade up to 2.

Effect of phenol neurolysis in the treatment of spasticity:a Calicut experience

Pradeep Kumar Kalathil, T K Vasudevan**, S Abdul Gafoor****

Objective: To assess the decrease in spasticity after phenol neurolysis.

Design: Before – after trial with 6 months follow-up.

Setting: Out paients and in patients attending PMR department at Calicut Medical college, Kerala from January1 to June 30, 2011.

Materials and Methods: Patients with spasticity grade 2 and more were treated with peripheral nerve phenol block after nerve localisation with nerve stimulator. Evaluation included clinical assessment of spasticity (Ashwaorth Scale) and FIM scoring after 1 week, 3 weeks, and 6 weeks and thereafter monthly.

Results: Spasticity decreased after neurolysis . Significant functional improvement was also noted.

Conclusion: Phenol neurolysis is a useful and cost effective treatment for spasticity.

*Junior Resident

**Assistant Professor

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Abstract

Comperative study between the efficacy of facet joint block and ultrasound therapy in L4/L5 facet arthropathy

T Ahmed, A Basak, A Banerjee, S Iswarari, R Pramanik, P Das

STUDY DESIGN: Prospective randomised control study

STUDY PLACE: NRSMC& SSKM, IPGMER

INCUSION CRITERIA:

(i) L_4/L_5 Facet arthropathy who failed 2 weeks conservative treatment

(ii) Clinical symptoms and signs of facet arthropathy

EXCLUSION CRITERIA :

(i) Structural congenital vertebral anomalies
(ii) Associated PIVD/ spondylolisthesis
(iii) Spondylo-arthropathy
(iv) Unable to give consent
(v) Bleeding diatheses
(vi) Contra-indication of facet joint block/ UST

SAMPLE SIZE : 60 patients

MATERIALS and METHODS : Patients with facet arthropathy of L4/ L5 attended in PMR OPD of NRSMCH &SSKM IPGMER who already received 2 weeks of conservative treatment with orthoses, NSAID and exercise. Patients were divided randomly into 2 groups after taking consent from patients. Group A received facet joint block and group B received a course of UST. Follow-up were done on 0, 3weeks, 6 weeks.

ASSESSMENT CRITERIA: VAS, OSWESTRY INDEX (pain, disability)

RESULT ANALYSIS: Using SPSS software

DISCUSSION: Comparison of the reduction of pain and disability between the conservative treatment and the facet joint block group showed that there is statistically significant improvement (p value < 0.05) in those patients treated with facet joint block. UST showed improvement without statistical significance.

CONCLUSION: Facet joint block is definitely helpful in treatment of L4/L5 facet arthropathy.

KEY WORDS: Facet joint arthropathy, UST, Facet joint injection.

Abstract

Comparison of anterior and posterior ankle foot orthoses in foot drop patients by metabolic analysis

*Harleen Uppal, Gita Handa, U Singh, S Wadhwa, S L Yadav, R M Pandey**

OBJECTIVE: This is a preliminary study being conducted to investigate the changes and compare them in terms of metabolic equivalent, VO_2, VCO_2 and gait patterns in foot drop patients with anterior and posterior ankle foot orthoses.

STUDY DESIGN: The subject group comprises 20 unilateral foot drop patients who can walk independently or with a cane, after obtaining clearance from the Ethics Committee. Only patients with a spasticity score of <2 as per the Modified Ashworth Scale are being included in the study. A cross-over study is being conducted. Metabolic analysis and gait analysis of the patients is carried out while wearing anterior and posterior ankle foot orthoses separately using START 2000M portable metabolic analyser system and the Zebris Gait Analysis System respectively. The study also includes a subjective questionnaire after 1 month to ask the patient's preference. The entire study is being conducted in the out patient department of Physical Medicine and Rehabilitation, All India Institute of Medical Sciences.

RESULTS: In 8 patients till now we have seen a decrease in metabolic equivalent in patients wearing anterior ankle foot orthosis as compared to posterior ankle foot orthosis while there were no significant changes in gait analysis between the two.

CONCLUSION: The study concluded that wearing anterior ankle foot orthosis was better metabolically than posterior ankle foot orthosis.

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Burden and stress in care-givers of children with cerebral palsy

Ramita Sardana, S L Yadav, U Singh, Sanjay Wadhwa, Gita Handa, Manju Mehta, R M Pandey***

Study Design : Descriptive study.

Objective : The purpose of this descriptive research was to examine caregiver burden and to investigate the predicting power of caregiver's age, family income, care giver's health status etc. on stress and burden of care-

Abstract

givers of children with cerebral palsy.

Material and method : The study sample consisted of 65 primary care-givers of children with cerebral palsy aged 6 months to 10 years. Two scales were used, DAS scale and care-giver burden scale. Data were collected by questionnaires. Descriptive statistics and multiple regression were used for data analysis.

Results : The results revealed that emotional burden on care-givers of children with cerebral palsy was moderate, financial burden was low and physical and social burden were low to moderate.

Conclusion: From this study it is concluded that care - givers of children with cerebral palsy experience burden and stress. These findings suggest that doctors should provide intervention to increase the care-giver's skill in providing care and coping, enhance support networks and encourage and promote the health and well being of care-givers, so that care-givers can effectively and efficiently care for their children with cerebral palsy.

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A study of effects of intervention of botulinum toxin A on lower limb in children with spastic cerebral palsy

Raj Kumar, S Wadhwa, U Singh, S L Yadav

STUDY DESIGN : Prospective study

OBJECTIVE : Analysis of clinical gait pattern, change in spasticity and range of motion cerebral palsy patient with spastic lower limb muscle after injecting botulinum toxin- A.

MATERIAL AND METHODS : 28 children (18 males and 10 females) with spastic CP had problems in normal walking, aged 2–9 years (mean age 4.6 years), consecutively treated in the PMR department over a 20-month period, were prospectively followed-up and clinically assessed pre- and post-treatment (at 2 weeks and 2 months) both objectively and subjectively. Objective parameter included gait parameters – Stride length, cadence, velocity, step length, base of support; active range of motion (ROM), Passive ROM (measured by goniometry) and grading of muscle spasticity on Modified Ashworth scale. Subjective assessment were questionnaire in terms of comfort, ease of care, perineal hygiene,

Abstract

walking. Injections were performed using clinical palpatory method on OPD basis. All patients received BTX-A injections, followed with physical and occupational therapy and orthosis as needed.

RESULTS : Significant improvement was achieved for spasticity reduction in gastrocnemius ($p< 0.001$), hamstring and adductor ($p=0.050$), ankle AROM and PROM ($p< 0.001$) , active knee extension ($p=0.009$), popliteal angle ($p=0.015$) and % left and right foot contact ($p< 0.001$), whereas non-significant change observed in step length, cadence, velocity , stride length and base of support. Parents felt subjective improvement in >90% of cases.

CONCLUSION : Botulinum toxin- A injection of the lower limb muscles is established as effective in the treatment of spastic equinus/crouching/scissoring in patients with cerebral palsy. The treatment was feasible and easily implemented. Botulinum toxin- A injections were well tolerated, yielded no serious treatment-related adverse events.

Pachydermadactyly

Sumalatha K B, Dheeraj A, U Singh

A 23-year male, student from Delhi, presented with swelling of small joints of both hands for 3 years. There was no history of pain, fever, early morning stiffness, restriction of joint range of motion, difficulty with activities of daily living. There was no history of similar complaints in the past. On examination, there was no erythema, increased temperature, or tenderness. Swelling was soft in consistency and there was no restriction of joint range of motion. His lab investigations including complete haemogram and RF were within normal limits. B/L hand x-rays showed only soft tissue swelling around PIP joints of medial four fingers. There was no joint space reduction, erosions or peri-articular osteopenia. He had been treated with DMARDs and steroids (for short duration) previously with no improvement or worsening of symptoms. These features are consistent with diagnosis of pachydermadactyly, which is a rare distinct form of fibromatosis characterised by dense fibrosis and fibroblastic proliferation around one or more proximal interphalangeal joints. It usually affects the medial, lateral and dorsal aspects of proximal interphalangeal joints of digits II-V. It is a benign condition that mimics rheumatological disorders like rheumatoid arthritis, psoriatic arthritis, etc. We present a case report of pachydermadactyly and comment on the available literature as a benign condition like this should not be overly treated.

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A comparative study of efficacy of intra-articular injections of a single dose high molecular weight hyaluronic acid (HMW HA) versus 3 doses of mid molecular weight hyaluronic acid (MMW HA) in OAknee

A Banerjee, T Ahmed, P P Das, R Pramanik, P Das, A Palit

Objective : This comparative study investigated the efficacy of intraarticular injections of a single dose HMW HA versus 3 doses of MMW HA on knee osteo-arthritis (OA).

Study Design : Prospective randomized experimental study.

Study Place : OPD of Deptt. of PM&R, IPGME&R, Kolkata.

Study Duration : 3 months.

Study Sample : 40 patients. In each group twenty subjects with OA knee were injected with high and mid molecular weigh HA.

Methodology :

Inclusion criteria:

1) All patients with primary osteo-arthritis knee.

Abstract

2) Grade two or grade three osteo-arthritis knee.

Exclusion criteria:

1) All patients with secondary osteo-arthritis knee.
2) Grade one or grade four osteo-arthritis knee.
3) Patients with gross ligamental instability.
4) Patients with contraindications of intra-articular injections i.e. overlying soft tissue sepsis, bacteremia, anatomic inaccessibility, an uncooperative patient, articular instability, uncontrolled bleeding diathesis, etc.
5) Patients with contraindications of intra-articular HMW HA i.e. allergy to a visco-supplementation solution.

Assessment Criteria :

1) Pain & functional status components of the Western Ontario and McMaster Universities (WOMAC) scale,
2) VAS score and
3) 50 feet walktime

These were measured at baseline, 3 and 6 weeks post intervention.

Result Analysis: Significant improvement was found in patients who were treated with HMW HA injections ($p<0.05$). However, for the group which was treated with MMW HA, the improvement was not significant as the results yielded $p> 0.05$.

Conclusion : The results of the study indicated that the group treated with HMW HA showed better results compared to the group treated with MMW HA.

Abstract of National Mid Term CME 2011, Kolkata

Review of result of reconstructive surgeries in claw hand in leprosy cured patient

Vinod Prasad,
Assistant Professor, PMR Department, Patna Medical College

OBJECTIVE: Leprosy, though claimed to be cured, is yet prevalent in some parts of country, especially Bihar, Jharkhand. Cases do come with deformities of hands and feet, though leprosy disease itself cured. To improve functional result and lead a socially integrated and respectable life, we operated such cases of claw hand deformities.

MATERIALS & METHODS: We select the cases reporting to PMR OPD Deptt. Patna Medical College & hospital. Cases were referred from Primary Health Centre, District Hospitals and Skin department. We selected only those cases who have taken full course of MDT and who were otherwise fit for tendon transfer.

After a good period of pre-operative exercise to strengthen F.D.S of middle/ ring fingers, we operated generally under regional anaesthesia and esmarch tourniquet. We transferred flexor digitorum sublimis of middle finger to flexor pulleys of all the four fingers for claw hand. For opponensplasty, we transferred FDS of ring finger to exert effect of abduction and opposition. Postoperatively the hand was immobilised in P.O.P cast for three weeks. After that stiches removed, exercise started and fingers were kept in cylinder cast for further 2-3 weeks.

RESULTS: In most case unilateral upper limb was involved (78%). Least no (2.6%) was involved of both upper and lower limb. In upper limb, total claw i.e.(affection of ulnar and median nerves) was 7.6%. Postoperatively at the end of 24 months result were good (35%), workable (32%), excellent (12.6%), and poor (11.3%). Criteria were as suggested by DIFT. Commonest complication was flexion of PIP joint of finger. For this we used finger cylinder cast/ orthoses for longer period.

CONCLUSION: These neglected patients of post-Hansen's claw hand deformity certainly need care at tertiary treatment level. Apart from cosmetic look, ADL activities and functional gain has been achieved markedly. This helps patient attend and participated in various social activities.

Management of a case of spinal cord injury with flexor spasm and spasticity: what is appropriate technology?

*K Wangjam**

Introduction: Spinal cord injury is associated with various forms of hypertonia, including flexor spasm and spasticity. Hypertonia has to be treated if it interferes with the treatment programme, function or causes complications. Out of several methods of intervention, it is important to decide what is the most appropriate for a case.

Case: Fifteen years old male who suffered from # dislocation of C5 over C6 with incomplete C5 tetraplegia following injury due to fall from height on 18.10.10 is presented to illustrate the problem. He belonged to rural background and low economic status.

He was treated elsewhere before attending PMR on 10.01.11. He had severe spasticity and flexor spasm affecting both lower limbs (grade III to IV). In addition to the above, he had 3 major maltreatment related problems: (i) Grade VI sacral and left trochanteric sore. (ii) Penoscortal fistula. (iii) Effects of decompensation.

Results: Oral baclofen was tried for 3 weeks with incremental doses from 15 mg daily to 45 mg daily in divided doses. On the failure of this pharmacological intervention, injection phenol aqueous solution for motor point block and nerve block was performed on several sessions for different muscles and nerves. Video to record the change from pre-injection grade IV to grade I postinjection will demonstrate the effect. A new technique of injection of iliopsoas will be shown.

Discussion: Surgical intervention options are selective dorsal rhizotomy (SDR), peripheral orthopaldic procedures, like single event multiple level (SEML) type of surgery or/and neurectomies were not considered as the neurological status was evolving. Current status of these procedures reviewed.

Interventions which have temporary or reversible effect will be most suited for the case. Of which, intrathecal baclofen (ITB) would have been most appropriate. Cost

Abstract

and high-end technology is out of reach for a patient like him. Other alternative would have been low-end technology product like multiple sites Botox injection would have served as the second best. But the cost is absolutely forbidding. Recent status of these procedures will be given.

Conclusion: Selection of method of reducing hypertonia in SCI is not enough; most important is the appropriate technology for a case.

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* Professor & Head. PMR.
RIMS, Imphal

Integrated and challenging rehabilitation improves span and quality of life in SCI

M M Ghatak
(Founder & In-charge Medical Rehab Center, Kolkata)

Rehab not only improves quality of life, but also gives years to the life in SCI. Among 526 cases of SCI patients, rehabilitated as indoor basis (2 months to 14 months stay) in medical rehab centre, Kolkata a classical case report is given here.

Mr. X , a case of D12 # with complete paraplagia, after pedicle screw fixation was admitted for rehab with very poor GC , emaciated stature, blackish and shrunken eyes, severe UTI and fever,catheterised bladder, big sacral stage III pressure sore, poor nutritional background , constipated bowel and complete motor and sensory loss below the level of injury. The entire ailment compounded with mental depression.

Rehab started with tackling the severe medical illness. Medical experts, PMR and subspecialities (PT, OT, psychotherapist, nutritionist) were involved. Superspeciality teams consisted of pressure sore team (plastic surgeon, dressor attendant, sister and nutritionist), physical rehab team (PMR, PT, OT, orthotist) , Psycho Rehab team (PMR, psychotherapist, psychiatrist, attendant, sister), uro rehab team (urologist, RMO, sister, PMR), ortho team (orthopaedician, RMO, PMR, dressure) started working

He passed through series of problems as - H.O left hip – surgically removed for functional sitting, bedsore after recognisable healing – flap and skin grafting done, mild DVT – treated with LMWX and warfarin which induced increase PT and INR and bleeding, managed with FFP and conservatives. Mental depression led him to attempting suicide and psycho rehab and medicine actively dealt the situation, after urodynamic study CIC started and practised successfully, muscular bulk and physical strength and fitness came after control of all medical events and monitoring the nutrition scientifically and eventually. Wheelchair training, transfer techniques etc trained, home modification guidelines and vocational assessment and guidelines supplied to the patient A 13 months challenging rehab management successfully sent the patient at home.

PMR, the team leader, in true sense the doner of a bright positive life with increasing survival of a patient, gains positive scientific satisfaction than any other speciality and PMR speciality would find their knowledge not stuck and struggled by the encroachment of other specialists.

Closed phenol neurolysis and tibial neurectomy for gastrosoleus spasticity reduction and improvement of ambulation – a cohort study

Javed Anees*, T K Vasudevan**, S Abdul Gafoor***

Objective:- To compare the effects of closed phenol neurolysis and tibial neurectomy in decreasing spasticity and improving ambulation in patients with spastic equinus.

Design:- Cohort study

Setting: - Inpatients admitted in PM&R department, Calicut Medical College, Kerala.

Abstract

Study period: From January1 to July 31.

Method: - Patients with spasticity grade 2 and more were treated with peripheral nerve phenol block after nerve localisation with stimulator and posterior tibial neurectomy. Evaluation included clinical assessment scale of spasticity (modified Ashworth scale – MAS), FIM scale for transfer, Walking index for SCI.

Scoring of MAS and FIM, WISCI done 1 week, 3weeks and 6 weeks, 12 weeks after interventions.

Results: - Both groups showed significant reduction in spasticity and improvement in ambulation; more reduction of spasticity was observed with tibial neurotomy. Final results await the completion of study period.

Conclusion: -Current trend shows more favourable result in reduction of spasticity of tibial neurotomy and final results are being awaited.

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**Assistant Professor
***Professor and HOD- Department of PM&R, Calicut Medical College

A study of effects of home based exercise therapy on spinal mobility, fatigue, quality of life, disease activity and functional capacity in patients suffering from ankylosing spondylitis

Prajna Ranjani M, Sanjay Wadhwa, U Singh, Uma Kumar, R M Pandey***

Objective: To study the effects of home based exercise therapy on spinal mobility, functional capacity, daily activity, level of disease activity, extent of sense of well being, quality of life, fatigue, in patients of ankylosing spondylitis.

Material and Method : A prospective study conducted at PMR department, AIIMS, on 33 consenting patients of Ankylosing spondylitis, who fulfilled Modified New York criteria which included 31 males, 2 females, aged between 16 and 65 years. NAAS set of exercises along with deep breathing exercise was given for a period of 3 months. Compliance chart and tablet count chart were given to the patients. Patients were followed up every 6 weeks. Bath ankylosing spondylitis disease activity index (BASDAI), bath ankylosing spondylitis functional index (BASFI),bath ankylosing spondylitis metrology index (BASMI), bath ankylosing spondylitis global index (BAS-G), multidimentional assessment of fatigue (MAF), Ankylosing spondylitis quality of life (ASQoL) scales were administered to measure disease activity, functional status, spinal mobility, sense of well being, fatigue levels and quality of life in patients before and after exercise therapy.

Results : Statistically significant changes in median value of following parameters were obtained, BASDAI from 4.9 to 3.3 ($p<0.0007$), BASFI 4.4 to 3.4 ($p<0.004$), BASG 6 to 4.5 ($p<0.0005$), MAF 65.5 to 50 ($p<0.0004$), ASQoL 12 to 8 ($p<0.0088$) and no change in BASMI ($p<0.0813$).

Conclusion : Home based exercise therapy improved the sense of well being, quality of life, fatigue levels, and improvement in activities of daily living and reduce disease activity in patients with Ankylosing Spondylitis under study. Not much change in spinal mobility was found.

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SAMPLE SIZE : 30 patients.

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RESULTS : Twenty patients were males and 10 patients were females; 90% patients (27 patients) responded to total contact casting in 6 weeks which was statistically significant ($p < 0.05$); 10% cases(3 patients) were labelled as cast failure.Among 27 responders, in 20 patients (74.07%) ulcers took an average of 4 weeks to heal completely.In 14.81% patients ulcers healed completely in 6 weeks and in 11.11% patients ulcers healed completely in 2 weeks.Among the responders 66.66% patients had ulcers in forefoot, 22.22% patients had ulcers in midfoot and 11.11% patients had ulcers in hindfoot. Among the cast failure cases 66.66% patients had ulcers in hindfoot.

DISCUSSION :A study on the similar topic has been found in the following reference – J.Coll Physicians Sur Pak. 2008 Nov;18(11):695-8.They found total contact casting as an effective treatment modality for diabetic neuropathic foot ulcers.

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Pradeep Kumar Kalathil, T K Vasudevan**, S Abdul Gafoor****

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Setting: Out paients and in patients attending PMR department at Calicut Medical college, Kerala from January1 to June 30, 2011.

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Results: Spasticity decreased after neurolysis . Significant functional improvement was also noted.

Conclusion: Phenol neurolysis is a useful and cost effective treatment for spasticity.

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Abstract

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T Ahmed, A Basak, A Banerjee, S Iswarari, R Pramanik, P Das

STUDY DESIGN: Prospective randomised control study

STUDY PLACE: NRSMC& SSKM, IPGMER

INCUSION CRITERIA:

(i) L_4/L_5 Facet arthropathy who failed 2 weeks conservative treatment

(ii) Clinical symptoms and signs of facet arthropathy

EXCLUSION CRITERIA :

(i) Structural congenital vertebral anomalies
(ii) Associated PIVD/ spondylolisthesis
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SAMPLE SIZE : 60 patients

MATERIALS and METHODS : Patients with facet arthropathy of L4/ L5 attended in PMR OPD of NRSMCH &SSKM IPGMER who already received 2 weeks of conservative treatment with orthoses, NSAID and exercise. Patients were divided randomly into 2 groups after taking consent from patients. Group A received facet joint block and group B received a course of UST. Follow-up were done on 0, 3weeks, 6 weeks.

ASSESSMENT CRITERIA: VAS, OSWESTRY INDEX (pain, disability)

RESULT ANALYSIS: Using SPSS software

DISCUSSION: Comparison of the reduction of pain and disability between the conservative treatment and the facet joint block group showed that there is statistically significant improvement (p value < 0.05) in those patients treated with facet joint block. UST showed improvement without statistical significance.

CONCLUSION: Facet joint block is definitely helpful in treatment of L4/L5 facet arthropathy.

KEY WORDS: Facet joint arthropathy, UST, Facet joint injection.

Abstract

Comparison of anterior and posterior ankle foot orthoses in foot drop patients by metabolic analysis

*Harleen Uppal, Gita Handa, U Singh, S Wadhwa, S L Yadav, R M Pandey**

OBJECTIVE: This is a preliminary study being conducted to investigate the changes and compare them in terms of metabolic equivalent, VO_2, VCO_2 and gait patterns in foot drop patients with anterior and posterior ankle foot orthoses.

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RESULTS: In 8 patients till now we have seen a decrease in metabolic equivalent in patients wearing anterior ankle foot orthosis as compared to posterior ankle foot orthosis while there were no significant changes in gait analysis between the two.

CONCLUSION: The study concluded that wearing anterior ankle foot orthosis was better metabolically than posterior ankle foot orthosis.

*Department of Physical Medicine and Rehabilitation, All India Institute of Medical Sciences. Department of Biostatistics, All India Institute of Medical Sciences

Burden and stress in care-givers of children with cerebral palsy

Ramita Sardana, S L Yadav, U Singh, Sanjay Wadhwa, Gita Handa, Manju Mehta, R M Pandey***

Study Design : Descriptive study.

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Department of PMR, AIIMS, New Delhi.
*Department of Psychiatry, AIIMS, New Delhi.
** Department of Biostatistics, AIIMS, New Delhi.

A study of effects of intervention of botulinum toxin A on lower limb in children with spastic cerebral palsy

Raj Kumar, S Wadhwa, U Singh, S L Yadav

STUDY DESIGN : Prospective study

OBJECTIVE : Analysis of clinical gait pattern, change in spasticity and range of motion cerebral palsy patient with spastic lower limb muscle after injecting botulinum toxin- A.

MATERIAL AND METHODS : 28 children (18 males and 10 females) with spastic CP had problems in normal walking, aged 2–9 years (mean age 4.6 years), consecutively treated in the PMR department over a 20-month period, were prospectively followed-up and clinically assessed pre- and post-treatment (at 2 weeks and 2 months) both objectively and subjectively. Objective parameter included gait parameters – Stride length, cadence, velocity, step length, base of support; active range of motion (ROM), Passive ROM (measured by goniometry) and grading of muscle spasticity on Modified Ashworth scale. Subjective assessment were questionnaire in terms of comfort, ease of care, perineal hygiene,

Abstract

walking. Injections were performed using clinical palpatory method on OPD basis. All patients received BTX-A injections, followed with physical and occupational therapy and orthosis as needed.

RESULTS : Significant improvement was achieved for spasticity reduction in gastrocnemius ($p< 0.001$), hamstring and adductor ($p=0.050$), ankle AROM and PROM ($p< 0.001$) , active knee extension ($p=0.009$), popliteal angle ($p=0.015$) and % left and right foot contact ($p< 0.001$), whereas non-significant change observed in step length, cadence, velocity , stride length and base of support. Parents felt subjective improvement in >90% of cases.

CONCLUSION : Botulinum toxin- A injection of the lower limb muscles is established as effective in the treatment of spastic equinus/crouching/scissoring in patients with cerebral palsy. The treatment was feasible and easily implemented. Botulinum toxin- A injections were well tolerated, yielded no serious treatment-related adverse events.

Pachydermadactyly

Sumalatha K B, Dheeraj A, U Singh

A 23-year male, student from Delhi, presented with swelling of small joints of both hands for 3 years. There was no history of pain, fever, early morning stiffness, restriction of joint range of motion, difficulty with activities of daily living. There was no history of similar complaints in the past. On examination, there was no erythema, increased temperature, or tenderness. Swelling was soft in consistency and there was no restriction of joint range of motion. His lab investigations including complete haemogram and RF were within normal limits. B/L hand x-rays showed only soft tissue swelling around PIP joints of medial four fingers. There was no joint space reduction, erosions or peri-articular osteopenia. He had been treated with DMARDs and steroids (for short duration) previously with no improvement or worsening of symptoms. These features are consistent with diagnosis of pachydermadactyly, which is a rare distinct form of fibromatosis characterised by dense fibrosis and fibroblastic proliferation around one or more proximal interphalangeal joints. It usually affects the medial, lateral and dorsal aspects of proximal interphalangeal joints of digits II-V. It is a benign condition that mimics rheumatological disorders like rheumatoid arthritis, psoriatic arthritis, etc. We present a case report of pachydermadactyly and comment on the available literature as a benign condition like this should not be overly treated.

Department of PMR, AIIMS, New Delhi
Dept of PMR, AIIMS, New Delhi

A comparative study of efficacy of intra-articular injections of a single dose high molecular weight hyaluronic acid (HMW HA) versus 3 doses of mid molecular weight hyaluronic acid (MMW HA) in OAknee

A Banerjee, T Ahmed, P P Das, R Pramanik, P Das, A Palit

Objective : This comparative study investigated the efficacy of intraarticular injections of a single dose HMW HA versus 3 doses of MMW HA on knee osteo-arthritis (OA).

Study Design : Prospective randomized experimental study.

Study Place : OPD of Deptt. of PM&R, IPGME&R, Kolkata.

Study Duration : 3 months.

Study Sample : 40 patients. In each group twenty subjects with OA knee were injected with high and mid molecular weigh HA.

Methodology :

Inclusion criteria:

1) All patients with primary osteo-arthritis knee.

Abstract

2) Grade two or grade three osteo-arthritis knee.

Exclusion criteria:

1) All patients with secondary osteo-arthritis knee.
2) Grade one or grade four osteo-arthritis knee.
3) Patients with gross ligamental instability.
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Assessment Criteria :

1) Pain & functional status components of the Western Ontario and McMaster Universities (WOMAC) scale,
2) VAS score and
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These were measured at baseline, 3 and 6 weeks post intervention.

Result Analysis: Significant improvement was found in patients who were treated with HMW HA injections ($p<0.05$). However, for the group which was treated with MMW HA, the improvement was not significant as the results yielded $p> 0.05$.

Conclusion : The results of the study indicated that the group treated with HMW HA showed better results compared to the group treated with MMW HA.

Abstract of National Mid Term CME 2011, Kolkata

Review of result of reconstructive surgeries in claw hand in leprosy cured patient

Vinod Prasad,
Assistant Professor, PMR Department, Patna Medical College

OBJECTIVE: Leprosy, though claimed to be cured, is yet prevalent in some parts of country, especially Bihar, Jharkhand. Cases do come with deformities of hands and feet, though leprosy disease itself cured. To improve functional result and lead a socially integrated and respectable life, we operated such cases of claw hand deformities.

MATERIALS & METHODS: We select the cases reporting to PMR OPD Deptt. Patna Medical College & hospital. Cases were referred from Primary Health Centre, District Hospitals and Skin department. We selected only those cases who have taken full course of MDT and who were otherwise fit for tendon transfer.

After a good period of pre-operative exercise to strengthen F.D.S of middle/ ring fingers, we operated generally under regional anaesthesia and esmarch tourniquet. We transferred flexor digitorum sublimis of middle finger to flexor pulleys of all the four fingers for claw hand. For opponensplasty, we transferred FDS of ring finger to exert effect of abduction and opposition. Postoperatively the hand was immobilised in P.O.P cast for three weeks. After that stiches removed, exercise started and fingers were kept in cylinder cast for further 2-3 weeks.

RESULTS: In most case unilateral upper limb was involved (78%). Least no (2.6%) was involved of both upper and lower limb. In upper limb, total claw i.e.(affection of ulnar and median nerves) was 7.6%. Postoperatively at the end of 24 months result were good (35%), workable (32%), excellent (12.6%), and poor (11.3%). Criteria were as suggested by DIFT. Commonest complication was flexion of PIP joint of finger. For this we used finger cylinder cast/ orthoses for longer period.

CONCLUSION: These neglected patients of post-Hansen's claw hand deformity certainly need care at tertiary treatment level. Apart from cosmetic look, ADL activities and functional gain has been achieved markedly. This helps patient attend and participated in various social activities.

Management of a case of spinal cord injury with flexor spasm and spasticity: what is appropriate technology?

*K Wangjam**

Introduction: Spinal cord injury is associated with various forms of hypertonia, including flexor spasm and spasticity. Hypertonia has to be treated if it interferes with the treatment programme, function or causes complications. Out of several methods of intervention, it is important to decide what is the most appropriate for a case.

Case: Fifteen years old male who suffered from # dislocation of C5 over C6 with incomplete C5 tetraplegia following injury due to fall from height on 18.10.10 is presented to illustrate the problem. He belonged to rural background and low economic status.

He was treated elsewhere before attending PMR on 10.01.11. He had severe spasticity and flexor spasm affecting both lower limbs (grade III to IV). In addition to the above, he had 3 major maltreatment related problems: (i) Grade VI sacral and left trochanteric sore. (ii) Penoscortal fistula. (iii) Effects of decompensation.

Results: Oral baclofen was tried for 3 weeks with incremental doses from 15 mg daily to 45 mg daily in divided doses. On the failure of this pharmacological intervention, injection phenol aqueous solution for motor point block and nerve block was performed on several sessions for different muscles and nerves. Video to record the change from pre-injection grade IV to grade I postinjection will demonstrate the effect. A new technique of injection of iliopsoas will be shown.

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and high-end technology is out of reach for a patient like him. Other alternative would have been low-end technology product like multiple sites Botox injection would have served as the second best. But the cost is absolutely forbidding. Recent status of these procedures will be given.

Conclusion: Selection of method of reducing hypertonia in SCI is not enough; most important is the appropriate technology for a case.

---

* Professor & Head. PMR.
RIMS, Imphal

Integrated and challenging rehabilitation improves span and quality of life in SCI

M M Ghatak
(Founder & In-charge Medical Rehab Center, Kolkata)

Rehab not only improves quality of life, but also gives years to the life in SCI. Among 526 cases of SCI patients, rehabilitated as indoor basis (2 months to 14 months stay) in medical rehab centre, Kolkata a classical case report is given here.

Mr. X , a case of D12 # with complete paraplagia, after pedicle screw fixation was admitted for rehab with very poor GC , emaciated stature, blackish and shrunken eyes, severe UTI and fever,catheterised bladder, big sacral stage III pressure sore, poor nutritional background , constipated bowel and complete motor and sensory loss below the level of injury. The entire ailment compounded with mental depression.

Rehab started with tackling the severe medical illness. Medical experts, PMR and subspecialities (PT, OT, psychotherapist, nutritionist) were involved. Superspeciality teams consisted of pressure sore team (plastic surgeon, dressor attendant, sister and nutritionist), physical rehab team (PMR, PT, OT, orthotist) , Psycho Rehab team (PMR, psychotherapist, psychiatrist, attendant, sister), uro rehab team (urologist, RMO, sister, PMR), ortho team (orthopaedician, RMO, PMR, dressure) started working

He passed through series of problems as - H.O left hip – surgically removed for functional sitting, bedsore after recognisable healing – flap and skin grafting done, mild DVT – treated with LMWX and warfarin which induced increase PT and INR and bleeding, managed with FFP and conservatives. Mental depression led him to attempting suicide and psycho rehab and medicine actively dealt the situation, after urodynamic study CIC started and practised successfully, muscular bulk and physical strength and fitness came after control of all medical events and monitoring the nutrition scientifically and eventually. Wheelchair training, transfer techniques etc trained, home modification guidelines and vocational assessment and guidelines supplied to the patient A 13 months challenging rehab management successfully sent the patient at home.

PMR, the team leader, in true sense the doner of a bright positive life with increasing survival of a patient, gains positive scientific satisfaction than any other speciality and PMR speciality would find their knowledge not stuck and struggled by the encroachment of other specialists.

Closed phenol neurolysis and tibial neurectomy for gastrosoleus spasticity reduction and improvement of ambulation – a cohort study

Javed Anees*, T K Vasudevan**, S Abdul Gafoor***

Objective:- To compare the effects of closed phenol neurolysis and tibial neurectomy in decreasing spasticity and improving ambulation in patients with spastic equinus.

Design:- Cohort study

Setting: - Inpatients admitted in PM&R department, Calicut Medical College, Kerala.

Abstract

Study period: From January1 to July 31.

Method: - Patients with spasticity grade 2 and more were treated with peripheral nerve phenol block after nerve localisation with stimulator and posterior tibial neurectomy. Evaluation included clinical assessment scale of spasticity (modified Ashworth scale – MAS), FIM scale for transfer, Walking index for SCI.

Scoring of MAS and FIM, WISCI done 1 week, 3weeks and 6 weeks, 12 weeks after interventions.

Results: - Both groups showed significant reduction in spasticity and improvement in ambulation; more reduction of spasticity was observed with tibial neurotomy. Final results await the completion of study period.

Conclusion: -Current trend shows more favourable result in reduction of spasticity of tibial neurotomy and final results are being awaited.

*Junior Resident
**Assistant Professor
***Professor and HOD- Department of PM&R, Calicut Medical College

A study of effects of home based exercise therapy on spinal mobility, fatigue, quality of life, disease activity and functional capacity in patients suffering from ankylosing spondylitis

Prajna Ranjani M, Sanjay Wadhwa, U Singh, Uma Kumar, R M Pandey***

Objective: To study the effects of home based exercise therapy on spinal mobility, functional capacity, daily activity, level of disease activity, extent of sense of well being, quality of life, fatigue, in patients of ankylosing spondylitis.

Material and Method : A prospective study conducted at PMR department, AIIMS, on 33 consenting patients of Ankylosing spondylitis, who fulfilled Modified New York criteria which included 31 males, 2 females, aged between 16 and 65 years. NAAS set of exercises along with deep breathing exercise was given for a period of 3 months. Compliance chart and tablet count chart were given to the patients. Patients were followed up every 6 weeks. Bath ankylosing spondylitis disease activity index (BASDAI), bath ankylosing spondylitis functional index (BASFI),bath ankylosing spondylitis metrology index (BASMI), bath ankylosing spondylitis global index (BAS-G), multidimentional assessment of fatigue (MAF), Ankylosing spondylitis quality of life (ASQoL) scales were administered to measure disease activity, functional status, spinal mobility, sense of well being, fatigue levels and quality of life in patients before and after exercise therapy.

Results : Statistically significant changes in median value of following parameters were obtained, BASDAI from 4.9 to 3.3 ($p<0.0007$), BASFI 4.4 to 3.4 ($p<0.004$), BASG 6 to 4.5 ($p<0.0005$), MAF 65.5 to 50 ($p<0.0004$), ASQoL 12 to 8 ($p<0.0088$) and no change in BASMI ($p<0.0813$).

Conclusion : Home based exercise therapy improved the sense of well being, quality of life, fatigue levels, and improvement in activities of daily living and reduce disease activity in patients with Ankylosing Spondylitis under study. Not much change in spinal mobility was found.

Department of Physical Medicine and Rehabilitation (P.M.R), AIIMS
*Additional Professor, Dept. of Medicine (Rheumatology Unit), AIIMS
** Professor & Head, Dept of Biostatistics, AIIMS

Assessment of total contact casting in diabetic neuropathic foot ulcers

A Basak, T Ahmed, S Mishra, P P Das, A Palit, R N Haldar

OBJECTIVE : To determine the outcome of diabetic neuropathic foot ulcers treated with total contact casting (TCC) in terms of duration to heal and percentage of ulcers healed based on improvement of Wagner's grading.

Abstract

STUDY DESIGN : Prospective Clinical Trial.

SAMPLE SIZE : 30 patients.

PLACE OF STUDY : Department of Physical Medicine & Rehabilitation,IPGME & R,SSKM Hospital,Kolkata.

DURATION OF STUDY :6 months.

INCLUSION CRITERIA : Diabetic neuropathic foot ulcers upto grade 2 of Wagner's classification treated with local dressing, antibiotic, orthosis but with no improvement.

EXCLUSION CRITERIA :

(1) Patients unwilling to give consent.

(2) Active or acute deep infection, sepsis or gangrene.

(3) Patients unable to comply with follow-up visits or wearing precautions.

MATERIALS AND METHODS :

After selection of the patients based on inclusion and exclusion criteria,ulcers were debrided off under aseptic condition and total contact casting was applied.Total contact casting was removed weekly and was done again if necessary for the maximum period of 6 weeks or till healing.Cases were labelled as cast failure when there was no improvement of Wagner's grading in 6 weeks.Main outcome measures were duration to heal and improvement of Wagner's grading.

RESULTS : Twenty patients were males and 10 patients were females; 90% patients (27 patients) responded to total contact casting in 6 weeks which was statistically significant ($p < 0.05$); 10% cases(3 patients) were labelled as cast failure.Among 27 responders, in 20 patients (74.07%) ulcers took an average of 4 weeks to heal completely.In 14.81% patients ulcers healed completely in 6 weeks and in 11.11% patients ulcers healed completely in 2 weeks.Among the responders 66.66% patients had ulcers in forefoot, 22.22% patients had ulcers in midfoot and 11.11% patients had ulcers in hindfoot. Among the cast failure cases 66.66% patients had ulcers in hindfoot.

DISCUSSION :A study on the similar topic has been found in the following reference – J.Coll Physicians Sur Pak. 2008 Nov;18(11):695-8.They found total contact casting as an effective treatment modality for diabetic neuropathic foot ulcers.

CONCLUSION : Total contact casting is an effective treatment modality for neuropathic diabetic foot ulcers with Wagner's grade up to 2.

Effect of phenol neurolysis in the treatment of spasticity:a Calicut experience

Pradeep Kumar Kalathil, T K Vasudevan**, S Abdul Gafoor****

Objective: To assess the decrease in spasticity after phenol neurolysis.

Design: Before – after trial with 6 months follow-up.

Setting: Out paients and in patients attending PMR department at Calicut Medical college, Kerala from January1 to June 30, 2011.

Materials and Methods: Patients with spasticity grade 2 and more were treated with peripheral nerve phenol block after nerve localisation with nerve stimulator. Evaluation included clinical assessment of spasticity (Ashwaorth Scale) and FIM scoring after 1 week, 3 weeks, and 6 weeks and thereafter monthly.

Results: Spasticity decreased after neurolysis . Significant functional improvement was also noted.

Conclusion: Phenol neurolysis is a useful and cost effective treatment for spasticity.

*Junior Resident

**Assistant Professor

***Professor and HOD- Department of PM&R, Calicut Medical College

Abstract

Comperative study between the efficacy of facet joint block and ultrasound therapy in L4/L5 facet arthropathy

T Ahmed, A Basak, A Banerjee, S Iswarari, R Pramanik, P Das

STUDY DESIGN: Prospective randomised control study

STUDY PLACE: NRSMC& SSKM, IPGMER

INCUSION CRITERIA:

(i) L_4/L_5 Facet arthropathy who failed 2 weeks conservative treatment

(ii) Clinical symptoms and signs of facet arthropathy

EXCLUSION CRITERIA :

(i) Structural congenital vertebral anomalies
(ii) Associated PIVD/ spondylolisthesis
(iii) Spondylo-arthropathy
(iv) Unable to give consent
(v) Bleeding diatheses
(vi) Contra-indication of facet joint block/ UST

SAMPLE SIZE : 60 patients

MATERIALS and METHODS : Patients with facet arthropathy of L4/ L5 attended in PMR OPD of NRSMCH &SSKM IPGMER who already received 2 weeks of conservative treatment with orthoses, NSAID and exercise. Patients were divided randomly into 2 groups after taking consent from patients. Group A received facet joint block and group B received a course of UST. Follow-up were done on 0, 3weeks, 6 weeks.

ASSESSMENT CRITERIA: VAS, OSWESTRY INDEX (pain, disability)

RESULT ANALYSIS: Using SPSS software

DISCUSSION: Comparison of the reduction of pain and disability between the conservative treatment and the facet joint block group showed that there is statistically significant improvement (p value < 0.05) in those patients treated with facet joint block. UST showed improvement without statistical significance.

CONCLUSION: Facet joint block is definitely helpful in treatment of L4/L5 facet arthropathy.

KEY WORDS: Facet joint arthropathy, UST, Facet joint injection.

Abstract

Comparison of anterior and posterior ankle foot orthoses in foot drop patients by metabolic analysis

*Harleen Uppal, Gita Handa, U Singh, S Wadhwa, S L Yadav, R M Pandey**

OBJECTIVE: This is a preliminary study being conducted to investigate the changes and compare them in terms of metabolic equivalent, VO_2, VCO_2 and gait patterns in foot drop patients with anterior and posterior ankle foot orthoses.

STUDY DESIGN: The subject group comprises 20 unilateral foot drop patients who can walk independently or with a cane, after obtaining clearance from the Ethics Committee. Only patients with a spasticity score of <2 as per the Modified Ashworth Scale are being included in the study. A cross-over study is being conducted. Metabolic analysis and gait analysis of the patients is carried out while wearing anterior and posterior ankle foot orthoses separately using START 2000M portable metabolic analyser system and the Zebris Gait Analysis System respectively. The study also includes a subjective questionnaire after 1 month to ask the patient's preference. The entire study is being conducted in the out patient department of Physical Medicine and Rehabilitation, All India Institute of Medical Sciences.

RESULTS: In 8 patients till now we have seen a decrease in metabolic equivalent in patients wearing anterior ankle foot orthosis as compared to posterior ankle foot orthosis while there were no significant changes in gait analysis between the two.

CONCLUSION: The study concluded that wearing anterior ankle foot orthosis was better metabolically than posterior ankle foot orthosis.

*Department of Physical Medicine and Rehabilitation, All India Institute of Medical Sciences. Department of Biostatistics, All India Institute of Medical Sciences

Burden and stress in care-givers of children with cerebral palsy

Ramita Sardana, S L Yadav, U Singh, Sanjay Wadhwa, Gita Handa, Manju Mehta, R M Pandey***

Study Design : Descriptive study.

Objective : The purpose of this descriptive research was to examine caregiver burden and to investigate the predicting power of caregiver's age, family income, care giver's health status etc. on stress and burden of care-

Abstract

givers of children with cerebral palsy.

Material and method : The study sample consisted of 65 primary care-givers of children with cerebral palsy aged 6 months to 10 years. Two scales were used, DAS scale and care-giver burden scale. Data were collected by questionnaires. Descriptive statistics and multiple regression were used for data analysis.

Results : The results revealed that emotional burden on care-givers of children with cerebral palsy was moderate, financial burden was low and physical and social burden were low to moderate.

Conclusion: From this study it is concluded that care - givers of children with cerebral palsy experience burden and stress. These findings suggest that doctors should provide intervention to increase the care-giver's skill in providing care and coping, enhance support networks and encourage and promote the health and well being of care-givers, so that care-givers can effectively and efficiently care for their children with cerebral palsy.

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*Department of Psychiatry, AIIMS, New Delhi.
** Department of Biostatistics, AIIMS, New Delhi.

A study of effects of intervention of botulinum toxin A on lower limb in children with spastic cerebral palsy

Raj Kumar, S Wadhwa, U Singh, S L Yadav

STUDY DESIGN : Prospective study

OBJECTIVE : Analysis of clinical gait pattern, change in spasticity and range of motion cerebral palsy patient with spastic lower limb muscle after injecting botulinum toxin- A.

MATERIAL AND METHODS : 28 children (18 males and 10 females) with spastic CP had problems in normal walking, aged 2–9 years (mean age 4.6 years), consecutively treated in the PMR department over a 20-month period, were prospectively followed-up and clinically assessed pre- and post-treatment (at 2 weeks and 2 months) both objectively and subjectively. Objective parameter included gait parameters – Stride length, cadence, velocity, step length, base of support; active range of motion (ROM), Passive ROM (measured by goniometry) and grading of muscle spasticity on Modified Ashworth scale. Subjective assessment were questionnaire in terms of comfort, ease of care, perineal hygiene,

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walking. Injections were performed using clinical palpatory method on OPD basis. All patients received BTX-A injections, followed with physical and occupational therapy and orthosis as needed.

RESULTS : Significant improvement was achieved for spasticity reduction in gastrocnemius ($p< 0.001$), hamstring and adductor ($p=0.050$), ankle AROM and PROM ($p< 0.001$) , active knee extension ($p=0.009$), popliteal angle ($p=0.015$) and % left and right foot contact ($p< 0.001$), whereas non-significant change observed in step length, cadence, velocity , stride length and base of support. Parents felt subjective improvement in >90% of cases.

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Vinod Prasad,
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Integrated and challenging rehabilitation improves span and quality of life in SCI

M M Ghatak
(Founder & In-charge Medical Rehab Center, Kolkata)

Rehab not only improves quality of life, but also gives years to the life in SCI. Among 526 cases of SCI patients, rehabilitated as indoor basis (2 months to 14 months stay) in medical rehab centre, Kolkata a classical case report is given here.

Mr. X , a case of D12 # with complete paraplagia, after pedicle screw fixation was admitted for rehab with very poor GC , emaciated stature, blackish and shrunken eyes, severe UTI and fever,catheterised bladder, big sacral stage III pressure sore, poor nutritional background , constipated bowel and complete motor and sensory loss below the level of injury. The entire ailment compounded with mental depression.

Rehab started with tackling the severe medical illness. Medical experts, PMR and subspecialities (PT, OT, psychotherapist, nutritionist) were involved. Superspeciality teams consisted of pressure sore team (plastic surgeon, dressor attendant, sister and nutritionist), physical rehab team (PMR, PT, OT, orthotist) , Psycho Rehab team (PMR, psychotherapist, psychiatrist, attendant, sister), uro rehab team (urologist, RMO, sister, PMR), ortho team (orthopaedician, RMO, PMR, dressure) started working

He passed through series of problems as - H.O left hip – surgically removed for functional sitting, bedsore after recognisable healing – flap and skin grafting done, mild DVT – treated with LMWX and warfarin which induced increase PT and INR and bleeding, managed with FFP and conservatives. Mental depression led him to attempting suicide and psycho rehab and medicine actively dealt the situation, after urodynamic study CIC started and practised successfully, muscular bulk and physical strength and fitness came after control of all medical events and monitoring the nutrition scientifically and eventually. Wheelchair training, transfer techniques etc trained, home modification guidelines and vocational assessment and guidelines supplied to the patient A 13 months challenging rehab management successfully sent the patient at home.

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Closed phenol neurolysis and tibial neurectomy for gastrosoleus spasticity reduction and improvement of ambulation – a cohort study

Javed Anees*, T K Vasudevan**, S Abdul Gafoor***

Objective:- To compare the effects of closed phenol neurolysis and tibial neurectomy in decreasing spasticity and improving ambulation in patients with spastic equinus.

Design:- Cohort study

Setting: - Inpatients admitted in PM&R department, Calicut Medical College, Kerala.

Abstract

Study period: From January1 to July 31.

Method: - Patients with spasticity grade 2 and more were treated with peripheral nerve phenol block after nerve localisation with stimulator and posterior tibial neurectomy. Evaluation included clinical assessment scale of spasticity (modified Ashworth scale – MAS), FIM scale for transfer, Walking index for SCI.

Scoring of MAS and FIM, WISCI done 1 week, 3weeks and 6 weeks, 12 weeks after interventions.

Results: - Both groups showed significant reduction in spasticity and improvement in ambulation; more reduction of spasticity was observed with tibial neurotomy. Final results await the completion of study period.

Conclusion: -Current trend shows more favourable result in reduction of spasticity of tibial neurotomy and final results are being awaited.

*Junior Resident
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A study of effects of home based exercise therapy on spinal mobility, fatigue, quality of life, disease activity and functional capacity in patients suffering from ankylosing spondylitis

Prajna Ranjani M, Sanjay Wadhwa, U Singh, Uma Kumar, R M Pandey***

Objective: To study the effects of home based exercise therapy on spinal mobility, functional capacity, daily activity, level of disease activity, extent of sense of well being, quality of life, fatigue, in patients of ankylosing spondylitis.

Material and Method : A prospective study conducted at PMR department, AIIMS, on 33 consenting patients of Ankylosing spondylitis, who fulfilled Modified New York criteria which included 31 males, 2 females, aged between 16 and 65 years. NAAS set of exercises along with deep breathing exercise was given for a period of 3 months. Compliance chart and tablet count chart were given to the patients. Patients were followed up every 6 weeks. Bath ankylosing spondylitis disease activity index (BASDAI), bath ankylosing spondylitis functional index (BASFI),bath ankylosing spondylitis metrology index (BASMI), bath ankylosing spondylitis global index (BAS-G), multidimentional assessment of fatigue (MAF), Ankylosing spondylitis quality of life (ASQoL) scales were administered to measure disease activity, functional status, spinal mobility, sense of well being, fatigue levels and quality of life in patients before and after exercise therapy.

Results : Statistically significant changes in median value of following parameters were obtained, BASDAI from 4.9 to 3.3 ($p<0.0007$), BASFI 4.4 to 3.4 ($p<0.004$), BASG 6 to 4.5 ($p<0.0005$), MAF 65.5 to 50 ($p<0.0004$), ASQoL 12 to 8 ($p<0.0088$) and no change in BASMI ($p<0.0813$).

Conclusion : Home based exercise therapy improved the sense of well being, quality of life, fatigue levels, and improvement in activities of daily living and reduce disease activity in patients with Ankylosing Spondylitis under study. Not much change in spinal mobility was found.

Department of Physical Medicine and Rehabilitation (P.M.R), AIIMS
*Additional Professor, Dept. of Medicine (Rheumatology Unit), AIIMS
** Professor & Head, Dept of Biostatistics, AIIMS

Assessment of total contact casting in diabetic neuropathic foot ulcers

A Basak, T Ahmed, S Mishra, P P Das, A Palit, R N Haldar

OBJECTIVE : To determine the outcome of diabetic neuropathic foot ulcers treated with total contact casting (TCC) in terms of duration to heal and percentage of ulcers healed based on improvement of Wagner's grading.

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STUDY DESIGN : Prospective Clinical Trial.

SAMPLE SIZE : 30 patients.

PLACE OF STUDY : Department of Physical Medicine & Rehabilitation,IPGME & R,SSKM Hospital,Kolkata.

DURATION OF STUDY :6 months.

INCLUSION CRITERIA : Diabetic neuropathic foot ulcers upto grade 2 of Wagner's classification treated with local dressing, antibiotic, orthosis but with no improvement.

EXCLUSION CRITERIA :

(1) Patients unwilling to give consent.

(2) Active or acute deep infection, sepsis or gangrene.

(3) Patients unable to comply with follow-up visits or wearing precautions.

MATERIALS AND METHODS :

After selection of the patients based on inclusion and exclusion criteria,ulcers were debrided off under aseptic condition and total contact casting was applied.Total contact casting was removed weekly and was done again if necessary for the maximum period of 6 weeks or till healing.Cases were labelled as cast failure when there was no improvement of Wagner's grading in 6 weeks.Main outcome measures were duration to heal and improvement of Wagner's grading.

RESULTS : Twenty patients were males and 10 patients were females; 90% patients (27 patients) responded to total contact casting in 6 weeks which was statistically significant ($p < 0.05$); 10% cases(3 patients) were labelled as cast failure.Among 27 responders, in 20 patients (74.07%) ulcers took an average of 4 weeks to heal completely.In 14.81% patients ulcers healed completely in 6 weeks and in 11.11% patients ulcers healed completely in 2 weeks.Among the responders 66.66% patients had ulcers in forefoot, 22.22% patients had ulcers in midfoot and 11.11% patients had ulcers in hindfoot. Among the cast failure cases 66.66% patients had ulcers in hindfoot.

DISCUSSION :A study on the similar topic has been found in the following reference – J.Coll Physicians Sur Pak. 2008 Nov;18(11):695-8.They found total contact casting as an effective treatment modality for diabetic neuropathic foot ulcers.

CONCLUSION : Total contact casting is an effective treatment modality for neuropathic diabetic foot ulcers with Wagner's grade up to 2.

Effect of phenol neurolysis in the treatment of spasticity:a Calicut experience

Pradeep Kumar Kalathil, T K Vasudevan**, S Abdul Gafoor****

Objective: To assess the decrease in spasticity after phenol neurolysis.

Design: Before – after trial with 6 months follow-up.

Setting: Out paients and in patients attending PMR department at Calicut Medical college, Kerala from January1 to June 30, 2011.

Materials and Methods: Patients with spasticity grade 2 and more were treated with peripheral nerve phenol block after nerve localisation with nerve stimulator. Evaluation included clinical assessment of spasticity (Ashwaorth Scale) and FIM scoring after 1 week, 3 weeks, and 6 weeks and thereafter monthly.

Results: Spasticity decreased after neurolysis . Significant functional improvement was also noted.

Conclusion: Phenol neurolysis is a useful and cost effective treatment for spasticity.

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Abstract

Comperative study between the efficacy of facet joint block and ultrasound therapy in L4/L5 facet arthropathy

T Ahmed, A Basak, A Banerjee, S Iswarari, R Pramanik, P Das

STUDY DESIGN: Prospective randomised control study

STUDY PLACE: NRSMC& SSKM, IPGMER

INCUSION CRITERIA:

(i) L_4/L_5 Facet arthropathy who failed 2 weeks conservative treatment

(ii) Clinical symptoms and signs of facet arthropathy

EXCLUSION CRITERIA :

(i) Structural congenital vertebral anomalies
(ii) Associated PIVD/ spondylolisthesis
(iii) Spondylo-arthropathy
(iv) Unable to give consent
(v) Bleeding diatheses
(vi) Contra-indication of facet joint block/ UST

SAMPLE SIZE : 60 patients

MATERIALS and METHODS : Patients with facet arthropathy of L4/ L5 attended in PMR OPD of NRSMCH &SSKM IPGMER who already received 2 weeks of conservative treatment with orthoses, NSAID and exercise. Patients were divided randomly into 2 groups after taking consent from patients. Group A received facet joint block and group B received a course of UST. Follow-up were done on 0, 3weeks, 6 weeks.

ASSESSMENT CRITERIA: VAS, OSWESTRY INDEX (pain, disability)

RESULT ANALYSIS: Using SPSS software

DISCUSSION: Comparison of the reduction of pain and disability between the conservative treatment and the facet joint block group showed that there is statistically significant improvement (p value < 0.05) in those patients treated with facet joint block. UST showed improvement without statistical significance.

CONCLUSION: Facet joint block is definitely helpful in treatment of L4/L5 facet arthropathy.

KEY WORDS: Facet joint arthropathy, UST, Facet joint injection.

Abstract

Comparison of anterior and posterior ankle foot orthoses in foot drop patients by metabolic analysis

*Harleen Uppal, Gita Handa, U Singh, S Wadhwa, S L Yadav, R M Pandey**

OBJECTIVE: This is a preliminary study being conducted to investigate the changes and compare them in terms of metabolic equivalent, VO_2, VCO_2 and gait patterns in foot drop patients with anterior and posterior ankle foot orthoses.

STUDY DESIGN: The subject group comprises 20 unilateral foot drop patients who can walk independently or with a cane, after obtaining clearance from the Ethics Committee. Only patients with a spasticity score of <2 as per the Modified Ashworth Scale are being included in the study. A cross-over study is being conducted. Metabolic analysis and gait analysis of the patients is carried out while wearing anterior and posterior ankle foot orthoses separately using START 2000M portable metabolic analyser system and the Zebris Gait Analysis System respectively. The study also includes a subjective questionnaire after 1 month to ask the patient's preference. The entire study is being conducted in the out patient department of Physical Medicine and Rehabilitation, All India Institute of Medical Sciences.

RESULTS: In 8 patients till now we have seen a decrease in metabolic equivalent in patients wearing anterior ankle foot orthosis as compared to posterior ankle foot orthosis while there were no significant changes in gait analysis between the two.

CONCLUSION: The study concluded that wearing anterior ankle foot orthosis was better metabolically than posterior ankle foot orthosis.

*Department of Physical Medicine and Rehabilitation, All India Institute of Medical Sciences. Department of Biostatistics, All India Institute of Medical Sciences

Burden and stress in care-givers of children with cerebral palsy

Ramita Sardana, S L Yadav, U Singh, Sanjay Wadhwa, Gita Handa, Manju Mehta, R M Pandey***

Study Design : Descriptive study.

Objective : The purpose of this descriptive research was to examine caregiver burden and to investigate the predicting power of caregiver's age, family income, care giver's health status etc. on stress and burden of care-

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givers of children with cerebral palsy.

Material and method : The study sample consisted of 65 primary care-givers of children with cerebral palsy aged 6 months to 10 years. Two scales were used, DAS scale and care-giver burden scale. Data were collected by questionnaires. Descriptive statistics and multiple regression were used for data analysis.

Results : The results revealed that emotional burden on care-givers of children with cerebral palsy was moderate, financial burden was low and physical and social burden were low to moderate.

Conclusion: From this study it is concluded that care - givers of children with cerebral palsy experience burden and stress. These findings suggest that doctors should provide intervention to increase the care-giver's skill in providing care and coping, enhance support networks and encourage and promote the health and well being of care-givers, so that care-givers can effectively and efficiently care for their children with cerebral palsy.

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*Department of Psychiatry, AIIMS, New Delhi.
** Department of Biostatistics, AIIMS, New Delhi.

A study of effects of intervention of botulinum toxin A on lower limb in children with spastic cerebral palsy

Raj Kumar, S Wadhwa, U Singh, S L Yadav

STUDY DESIGN : Prospective study

OBJECTIVE : Analysis of clinical gait pattern, change in spasticity and range of motion cerebral palsy patient with spastic lower limb muscle after injecting botulinum toxin- A.

MATERIAL AND METHODS : 28 children (18 males and 10 females) with spastic CP had problems in normal walking, aged 2–9 years (mean age 4.6 years), consecutively treated in the PMR department over a 20-month period, were prospectively followed-up and clinically assessed pre- and post-treatment (at 2 weeks and 2 months) both objectively and subjectively. Objective parameter included gait parameters – Stride length, cadence, velocity, step length, base of support; active range of motion (ROM), Passive ROM (measured by goniometry) and grading of muscle spasticity on Modified Ashworth scale. Subjective assessment were questionnaire in terms of comfort, ease of care, perineal hygiene,

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walking. Injections were performed using clinical palpatory method on OPD basis. All patients received BTX-A injections, followed with physical and occupational therapy and orthosis as needed.

RESULTS : Significant improvement was achieved for spasticity reduction in gastrocnemius ($p< 0.001$), hamstring and adductor ($p=0.050$), ankle AROM and PROM ($p< 0.001$) , active knee extension ($p=0.009$), popliteal angle ($p=0.015$) and % left and right foot contact ($p< 0.001$), whereas non-significant change observed in step length, cadence, velocity , stride length and base of support. Parents felt subjective improvement in >90% of cases.

CONCLUSION : Botulinum toxin- A injection of the lower limb muscles is established as effective in the treatment of spastic equinus/crouching/scissoring in patients with cerebral palsy. The treatment was feasible and easily implemented. Botulinum toxin- A injections were well tolerated, yielded no serious treatment-related adverse events.

Pachydermadactyly

Sumalatha K B, Dheeraj A, U Singh

A 23-year male, student from Delhi, presented with swelling of small joints of both hands for 3 years. There was no history of pain, fever, early morning stiffness, restriction of joint range of motion, difficulty with activities of daily living. There was no history of similar complaints in the past. On examination, there was no erythema, increased temperature, or tenderness. Swelling was soft in consistency and there was no restriction of joint range of motion. His lab investigations including complete haemogram and RF were within normal limits. B/L hand x-rays showed only soft tissue swelling around PIP joints of medial four fingers. There was no joint space reduction, erosions or peri-articular osteopenia. He had been treated with DMARDs and steroids (for short duration) previously with no improvement or worsening of symptoms. These features are consistent with diagnosis of pachydermadactyly, which is a rare distinct form of fibromatosis characterised by dense fibrosis and fibroblastic proliferation around one or more proximal interphalangeal joints. It usually affects the medial, lateral and dorsal aspects of proximal interphalangeal joints of digits II-V. It is a benign condition that mimics rheumatological disorders like rheumatoid arthritis, psoriatic arthritis, etc. We present a case report of pachydermadactyly and comment on the available literature as a benign condition like this should not be overly treated.

Department of PMR, AIIMS, New Delhi
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A comparative study of efficacy of intra-articular injections of a single dose high molecular weight hyaluronic acid (HMW HA) versus 3 doses of mid molecular weight hyaluronic acid (MMW HA) in OAknee

A Banerjee, T Ahmed, P P Das, R Pramanik, P Das, A Palit

Objective : This comparative study investigated the efficacy of intraarticular injections of a single dose HMW HA versus 3 doses of MMW HA on knee osteo-arthritis (OA).

Study Design : Prospective randomized experimental study.

Study Place : OPD of Deptt. of PM&R, IPGME&R, Kolkata.

Study Duration : 3 months.

Study Sample : 40 patients. In each group twenty subjects with OA knee were injected with high and mid molecular weigh HA.

Methodology :

Inclusion criteria:

1) All patients with primary osteo-arthritis knee.

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2) Grade two or grade three osteo-arthritis knee.

Exclusion criteria:

1) All patients with secondary osteo-arthritis knee.
2) Grade one or grade four osteo-arthritis knee.
3) Patients with gross ligamental instability.
4) Patients with contraindications of intra-articular injections i.e. overlying soft tissue sepsis, bacteremia, anatomic inaccessibility, an uncooperative patient, articular instability, uncontrolled bleeding diathesis, etc.
5) Patients with contraindications of intra-articular HMW HA i.e. allergy to a visco-supplementation solution.

Assessment Criteria :

1) Pain & functional status components of the Western Ontario and McMaster Universities (WOMAC) scale,
2) VAS score and
3) 50 feet walktime

These were measured at baseline, 3 and 6 weeks post intervention.

Result Analysis: Significant improvement was found in patients who were treated with HMW HA injections ($p<0.05$). However, for the group which was treated with MMW HA, the improvement was not significant as the results yielded $p> 0.05$.

Conclusion : The results of the study indicated that the group treated with HMW HA showed better results compared to the group treated with MMW HA.

Abstract of National Mid Term CME 2011, Kolkata

Review of result of reconstructive surgeries in claw hand in leprosy cured patient

Vinod Prasad,
Assistant Professor, PMR Department, Patna Medical College

OBJECTIVE: Leprosy, though claimed to be cured, is yet prevalent in some parts of country, especially Bihar, Jharkhand. Cases do come with deformities of hands and feet, though leprosy disease itself cured. To improve functional result and lead a socially integrated and respectable life, we operated such cases of claw hand deformities.

MATERIALS & METHODS: We select the cases reporting to PMR OPD Deptt. Patna Medical College & hospital. Cases were referred from Primary Health Centre, District Hospitals and Skin department. We selected only those cases who have taken full course of MDT and who were otherwise fit for tendon transfer.

After a good period of pre-operative exercise to strengthen F.D.S of middle/ ring fingers, we operated generally under regional anaesthesia and esmarch tourniquet. We transferred flexor digitorum sublimis of middle finger to flexor pulleys of all the four fingers for claw hand. For opponensplasty, we transferred FDS of ring finger to exert effect of abduction and opposition. Postoperatively the hand was immobilised in P.O.P cast for three weeks. After that stiches removed, exercise started and fingers were kept in cylinder cast for further 2-3 weeks.

RESULTS: In most case unilateral upper limb was involved (78%). Least no (2.6%) was involved of both upper and lower limb. In upper limb, total claw i.e.(affection of ulnar and median nerves) was 7.6%. Postoperatively at the end of 24 months result were good (35%), workable (32%), excellent (12.6%), and poor (11.3%). Criteria were as suggested by DIFT. Commonest complication was flexion of PIP joint of finger. For this we used finger cylinder cast/ orthoses for longer period.

CONCLUSION: These neglected patients of post-Hansen's claw hand deformity certainly need care at tertiary treatment level. Apart from cosmetic look, ADL activities and functional gain has been achieved markedly. This helps patient attend and participated in various social activities.

Management of a case of spinal cord injury with flexor spasm and spasticity: what is appropriate technology?

*K Wangjam**

Introduction: Spinal cord injury is associated with various forms of hypertonia, including flexor spasm and spasticity. Hypertonia has to be treated if it interferes with the treatment programme, function or causes complications. Out of several methods of intervention, it is important to decide what is the most appropriate for a case.

Case: Fifteen years old male who suffered from # dislocation of C5 over C6 with incomplete C5 tetraplegia following injury due to fall from height on 18.10.10 is presented to illustrate the problem. He belonged to rural background and low economic status.

He was treated elsewhere before attending PMR on 10.01.11. He had severe spasticity and flexor spasm affecting both lower limbs (grade III to IV). In addition to the above, he had 3 major maltreatment related problems: (i) Grade VI sacral and left trochanteric sore. (ii) Penoscortal fistula. (iii) Effects of decompensation.

Results: Oral baclofen was tried for 3 weeks with incremental doses from 15 mg daily to 45 mg daily in divided doses. On the failure of this pharmacological intervention, injection phenol aqueous solution for motor point block and nerve block was performed on several sessions for different muscles and nerves. Video to record the change from pre-injection grade IV to grade I postinjection will demonstrate the effect. A new technique of injection of iliopsoas will be shown.

Discussion: Surgical intervention options are selective dorsal rhizotomy (SDR), peripheral orthopaldic procedures, like single event multiple level (SEML) type of surgery or/and neurectomies were not considered as the neurological status was evolving. Current status of these procedures reviewed.

Interventions which have temporary or reversible effect will be most suited for the case. Of which, intrathecal baclofen (ITB) would have been most appropriate. Cost

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and high-end technology is out of reach for a patient like him. Other alternative would have been low-end technology product like multiple sites Botox injection would have served as the second best. But the cost is absolutely forbidding. Recent status of these procedures will be given.

Conclusion: Selection of method of reducing hypertonia in SCI is not enough; most important is the appropriate technology for a case.

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* Professor & Head. PMR.
RIMS, Imphal

Integrated and challenging rehabilitation improves span and quality of life in SCI

M M Ghatak
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(iv) Unable to give consent
(v) Bleeding diatheses
(vi) Contra-indication of facet joint block/ UST

SAMPLE SIZE : 60 patients

MATERIALS and METHODS : Patients with facet arthropathy of L4/ L5 attended in PMR OPD of NRSMCH &SSKM IPGMER who already received 2 weeks of conservative treatment with orthoses, NSAID and exercise. Patients were divided randomly into 2 groups after taking consent from patients. Group A received facet joint block and group B received a course of UST. Follow-up were done on 0, 3weeks, 6 weeks.

ASSESSMENT CRITERIA: VAS, OSWESTRY INDEX (pain, disability)

RESULT ANALYSIS: Using SPSS software

DISCUSSION: Comparison of the reduction of pain and disability between the conservative treatment and the facet joint block group showed that there is statistically significant improvement (p value < 0.05) in those patients treated with facet joint block. UST showed improvement without statistical significance.

CONCLUSION: Facet joint block is definitely helpful in treatment of L4/L5 facet arthropathy.

KEY WORDS: Facet joint arthropathy, UST, Facet joint injection.

Abstract

Comparison of anterior and posterior ankle foot orthoses in foot drop patients by metabolic analysis

*Harleen Uppal, Gita Handa, U Singh, S Wadhwa, S L Yadav, R M Pandey**

OBJECTIVE: This is a preliminary study being conducted to investigate the changes and compare them in terms of metabolic equivalent, VO_2, VCO_2 and gait patterns in foot drop patients with anterior and posterior ankle foot orthoses.

STUDY DESIGN: The subject group comprises 20 unilateral foot drop patients who can walk independently or with a cane, after obtaining clearance from the Ethics Committee. Only patients with a spasticity score of <2 as per the Modified Ashworth Scale are being included in the study. A cross-over study is being conducted. Metabolic analysis and gait analysis of the patients is carried out while wearing anterior and posterior ankle foot orthoses separately using START 2000M portable metabolic analyser system and the Zebris Gait Analysis System respectively. The study also includes a subjective questionnaire after 1 month to ask the patient's preference. The entire study is being conducted in the out patient department of Physical Medicine and Rehabilitation, All India Institute of Medical Sciences.

RESULTS: In 8 patients till now we have seen a decrease in metabolic equivalent in patients wearing anterior ankle foot orthosis as compared to posterior ankle foot orthosis while there were no significant changes in gait analysis between the two.

CONCLUSION: The study concluded that wearing anterior ankle foot orthosis was better metabolically than posterior ankle foot orthosis.

*Department of Physical Medicine and Rehabilitation, All India Institute of Medical Sciences. Department of Biostatistics, All India Institute of Medical Sciences

Burden and stress in care-givers of children with cerebral palsy

Ramita Sardana, S L Yadav, U Singh, Sanjay Wadhwa, Gita Handa, Manju Mehta, R M Pandey***

Study Design : Descriptive study.

Objective : The purpose of this descriptive research was to examine caregiver burden and to investigate the predicting power of caregiver's age, family income, care giver's health status etc. on stress and burden of care-

Abstract

givers of children with cerebral palsy.

Material and method : The study sample consisted of 65 primary care-givers of children with cerebral palsy aged 6 months to 10 years. Two scales were used, DAS scale and care-giver burden scale. Data were collected by questionnaires. Descriptive statistics and multiple regression were used for data analysis.

Results : The results revealed that emotional burden on care-givers of children with cerebral palsy was moderate, financial burden was low and physical and social burden were low to moderate.

Conclusion: From this study it is concluded that care - givers of children with cerebral palsy experience burden and stress. These findings suggest that doctors should provide intervention to increase the care-giver's skill in providing care and coping, enhance support networks and encourage and promote the health and well being of care-givers, so that care-givers can effectively and efficiently care for their children with cerebral palsy.

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A study of effects of intervention of botulinum toxin A on lower limb in children with spastic cerebral palsy

Raj Kumar, S Wadhwa, U Singh, S L Yadav

STUDY DESIGN : Prospective study

OBJECTIVE : Analysis of clinical gait pattern, change in spasticity and range of motion cerebral palsy patient with spastic lower limb muscle after injecting botulinum toxin- A.

MATERIAL AND METHODS : 28 children (18 males and 10 females) with spastic CP had problems in normal walking, aged 2–9 years (mean age 4.6 years), consecutively treated in the PMR department over a 20-month period, were prospectively followed-up and clinically assessed pre- and post-treatment (at 2 weeks and 2 months) both objectively and subjectively. Objective parameter included gait parameters – Stride length, cadence, velocity, step length, base of support; active range of motion (ROM), Passive ROM (measured by goniometry) and grading of muscle spasticity on Modified Ashworth scale. Subjective assessment were questionnaire in terms of comfort, ease of care, perineal hygiene,

Abstract

walking. Injections were performed using clinical palpatory method on OPD basis. All patients received BTX-A injections, followed with physical and occupational therapy and orthosis as needed.

RESULTS : Significant improvement was achieved for spasticity reduction in gastrocnemius ($p< 0.001$), hamstring and adductor ($p=0.050$), ankle AROM and PROM ($p< 0.001$) , active knee extension ($p=0.009$), popliteal angle ($p=0.015$) and % left and right foot contact ($p< 0.001$), whereas non-significant change observed in step length, cadence, velocity , stride length and base of support. Parents felt subjective improvement in >90% of cases.

CONCLUSION : Botulinum toxin- A injection of the lower limb muscles is established as effective in the treatment of spastic equinus/crouching/scissoring in patients with cerebral palsy. The treatment was feasible and easily implemented. Botulinum toxin- A injections were well tolerated, yielded no serious treatment-related adverse events.

Pachydermadactyly

Sumalatha K B, Dheeraj A, U Singh

A 23-year male, student from Delhi, presented with swelling of small joints of both hands for 3 years. There was no history of pain, fever, early morning stiffness, restriction of joint range of motion, difficulty with activities of daily living. There was no history of similar complaints in the past. On examination, there was no erythema, increased temperature, or tenderness. Swelling was soft in consistency and there was no restriction of joint range of motion. His lab investigations including complete haemogram and RF were within normal limits. B/L hand x-rays showed only soft tissue swelling around PIP joints of medial four fingers. There was no joint space reduction, erosions or peri-articular osteopenia. He had been treated with DMARDs and steroids (for short duration) previously with no improvement or worsening of symptoms. These features are consistent with diagnosis of pachydermadactyly, which is a rare distinct form of fibromatosis characterised by dense fibrosis and fibroblastic proliferation around one or more proximal interphalangeal joints. It usually affects the medial, lateral and dorsal aspects of proximal interphalangeal joints of digits II-V. It is a benign condition that mimics rheumatological disorders like rheumatoid arthritis, psoriatic arthritis, etc. We present a case report of pachydermadactyly and comment on the available literature as a benign condition like this should not be overly treated.

Department of PMR, AIIMS, New Delhi
Dept of PMR, AIIMS, New Delhi

A comparative study of efficacy of intra-articular injections of a single dose high molecular weight hyaluronic acid (HMW HA) versus 3 doses of mid molecular weight hyaluronic acid (MMW HA) in OAknee

A Banerjee, T Ahmed, P P Das, R Pramanik, P Das, A Palit

Objective : This comparative study investigated the efficacy of intraarticular injections of a single dose HMW HA versus 3 doses of MMW HA on knee osteo-arthritis (OA).

Study Design : Prospective randomized experimental study.

Study Place : OPD of Deptt. of PM&R, IPGME&R, Kolkata.

Study Duration : 3 months.

Study Sample : 40 patients. In each group twenty subjects with OA knee were injected with high and mid molecular weigh HA.

Methodology :

Inclusion criteria:

1) All patients with primary osteo-arthritis knee.

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2) Grade two or grade three osteo-arthritis knee.

Exclusion criteria:

1) All patients with secondary osteo-arthritis knee.
2) Grade one or grade four osteo-arthritis knee.
3) Patients with gross ligamental instability.
4) Patients with contraindications of intra-articular injections i.e. overlying soft tissue sepsis, bacteremia, anatomic inaccessibility, an uncooperative patient, articular instability, uncontrolled bleeding diathesis, etc.
5) Patients with contraindications of intra-articular HMW HA i.e. allergy to a visco-supplementation solution.

Assessment Criteria :

1) Pain & functional status components of the Western Ontario and McMaster Universities (WOMAC) scale,
2) VAS score and
3) 50 feet walktime

These were measured at baseline, 3 and 6 weeks post intervention.

Result Analysis: Significant improvement was found in patients who were treated with HMW HA injections ($p<0.05$). However, for the group which was treated with MMW HA, the improvement was not significant as the results yielded $p> 0.05$.

Conclusion : The results of the study indicated that the group treated with HMW HA showed better results compared to the group treated with MMW HA.

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Interventional Physiatry : need of the day

Decades back Rehabilitation Medicine started its noble journey to help the differently abled persons. In the last century this specialty of medical science tried its level best with the aid of few heat, electrical modalities and orthoses and prostheses. Although it was not a smooth journey, the subject has been devoloped up like a growing kid. In the meantime all the branches of medical fraternity became well equipped with different types of interventional technologies. With the advancement of medical equipment a real new era of medicine has begun. Everyday a newer weapon was sprucing up the armamentarium of physiatrist also. Over the last decade the concept of interventional physiatry has established itself particularly in USA. Even in 2001 there was an editorial in North American journal of Physical Medicine and Rehabilitation on "Interventional Physiatrist – a new concept".

Interventional pain management is one of burning issue in-today's medical practice. It is now well established, that The Physiatrist is one of the key professional to combat pain. Both somatic and sympathetically mediated pain is real challenge to not only the pain management team but also the patient. With the development of medical statistics and research work, it is becoming evident day by day that most of the modalities are not efficient enough to win the battle. Above all, the concept to hit the culprit (facet joint, intervertebral disc, lateral recess etc.) straightway makes the difference. Not only spinal interventions like epidural block, facet joint block etc. but also plexus block and stellate ganglion block is technically demanding particularly in the field of cancer rehabilitation. Peripheral nerve block is also sometimes very helpful to improve activity of daily living of lots of our patient. Even the interventional physiatrists are practising radiofrequency ablation, percutaneous discectomy etc. in different countries. Ozone therapy is becoming popular in several countries.

If pain management is the bread and butter for the physiatrist then spasticity management is the soul of the physiatrist's practice. The role of botulinum toxin and Phenol block is already well established in PMR literatures. Baclofen pump is another very important tool to counteract spasticity. Last but not the least the rehabilitation physicians are confidently tackling different types of endoscopes like cystoscopy in urorehabilitation and arthroscopies in soft tissue injury management etc.

Hence there is no other way rather than to accept the day's call. We are already showing our commitment in conventional physiatry for decades. There is no harm in enriching the basket of physiatrist of newer generation. In the era of twenty-first century's medical science we, the physiatrists of India , are hearing the bell, ready to gear up the subject's tool, happy to accept that " Interventional Physiatry : Need of the day".

Rathindranath Haldar **Rajesh Pramanik**

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Original Article

Diagnosis and treatment of chronic low back pain by differential intervention of disc, nerve root, facet joint: an open level prospective study : NRS protocol

Sourav Iswarari, Ranen Kumar Ghatak**, Sujitnarayan Nandi***,'*
*Kiran Kumar Mukherjee****, Abhijit Bandyopadahyay*****, Biplab Acharjee******

Abstract

To develop a diagnostic and treatment protocol for chronic low back pain due to involvement of nerve root, disc and facet joint by differential intervention and to find out the efficacy of the protocol (NRS protocol) in treating chronic low back paine.

This is an open level prospective study, involving patients with chronic low back pain of more than 6 weeks. We at NRS developed a protocol which included clinical assessment with imaging and intervention. On concurrence of diagnosis made by imaging and clinics we went for intervention to treat the condition with components of NRS Cocktail. Pre-intervention assessments were done and followed up at specific intervals after treatment. Results were analysed to see if the NRS Protocol and cocktail in disease diagnosis and treatment of the selected cohort.

Atotal of 32 patients, data were analysed over a period of 6 months. Assessment was made pre-intervention (0), at 3 weeks (1), at 3 months (2), at 6 months (3). Pain was assessed by visual analogue scale or VAS. Paired t test was employed to analyse results. Paired {VAS0-VAS1 (p value=0.000)], VAS1-VAS2 (p value =0.557), VAS2-VAS3 (p value=0.536)} data showed a very significant reduction in pain in the first visit after intervention (3 weeks) and maintenance of this reduction up to end of study (6 months). Disability was assessed by Oswestry Disability Index (ODI) and paired t test, when employed, showed similar trends [ODI0-ODI1 (p value=0.000), ODI1-ODI2 (p value =0.355), ODI2-ODI3 (p value=0.212)].

This protocol was able to diagnose and treat chronic low back pain due to facet, nerve root and disc in a very significant manner

Key words **: Chronic low back pain, facet, nerve root, disc, differential intervention, open NRS protocol.**

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Two-thirds of adults suffer from low back pain (LBP) at some time of their life or other. Low back pain is the second commonest cause of visit to a physician[1,2]. There are no standardised approach for its diagnosis and treatment. There have been evidences of excessive imaging and surgery for LBP. Many experts believe that the problem has been "over medicalised" for commercial ends[3,4].

Experimental studies suggest that low back pain may originate from many spinal structures, like the discs, facet joints, the spinal nerve roots and others. Commonest affection is age-related degenerative processes in the intervertebral discs and facet joints. Other common problems include spinal stenosis and disk pathology. Eighty- five percent of patients with isolated LBP cannot be given a precise patho-anatomical diagnosis because no physical examination has sufficient reliability or enough validity[5,6]. Moreover the association between symptoms and imaging is also weak[1,2,38].

Based on the above facts along with the easy and safe accessibility of spine by various interventional techniques we have tried to develop a different approach for diagnosis and treatment of LBP semi-conservatively. This has been the core philosophy behind this study in response to increasing usage of spinal interventions[7-9].

Methodology :

- A prospective open label, longitudinal, monocentric study.
- Total number of patients screened : 203
- Total number of patient enrolled : 47
- Follow-up rate : 68 percent
- Sample size: 32
- Study centre : Dept involved Physical Medicine & Rehabilitation (PM&R) & Dept of Orthopaedics of NRS Medical College, Kolkata, West Bengal, India.
- The project was approved duly by the institutional ethics committee.

Duration of study : Duration 1,2/12 year

Commencing date: November 2009

End date: December 2010

Inclusion criteria:

(1) Low back pain > 6 weeks

(2) Radiculopathy ≥ 6 weeks

(3) Neural claudication ≥ 6 weeks

(4) Failure of oral drug and other physiotherapeutic modalities

Exclusion criteria :

(1) Red Flag Cases as established in our protocol. [7]

(2) Waddel's signs ≥ 3 [10]

(3) Vascular claudication.

(4) Those that have fear avoidance established as the cause of pain[11].

(5) Those with other systemic, psychiatric or neurological diseases except depression due to pain.

(6) Myofascial bands

(7) Ligamentum flavum hypertrophy on MRI

(8) Vertebral compression fracture of body with signal enhancement in MRI

(9) Fibromyalgia

(10) Interspinous ligament band

(11) Sympathetic mediated pain

(12) From other coexisting articular and periarticular conditions.

NRS (NILRATAN SIRCAR MEDICAL COLLEGE) PROTOCOL

- Part I: Screening
- Part II: Clinical diagnosis
- Part III: Image based diagnosis
- Part IV: Interventional diagnosis
- Part V: Treatment based on diagnosis by NRS cocktail.

Part I : All selected patients were screened for positive red flag, fear avoidance believe scale and waddle's signs and other exclusion criteria. Patients fulfilling inclusion criteria were assessed for pain by VAS (visual analogue scale), for disability by Oswestry disability index (ODI) [12-14].

Part II: Clinical diagnosis: In addition to general, systemic neurological and musculoskeletal examination, following specific examinations were done.

(a) Quadrant loading test. spinal range of motion[15]

(b) Straight leg raising test (passive)

(c) Femoral stretch test.

(d) Dural stretch test

Part III : Imaging diagnosis (x-ray and magnetic resonance imaging).

Part IV: Interventional diagnosis : Clinical and radiological diagnosis were matched to ascertain the source of pain i.e. discogenic pain, facet or root. In these selected cases, spinal intervention was done to confirm the diagnosis[7-9].

Facet: facet block with intra-articular local anaesthetic were noted for disappearance of pain and nature of dye spread

Disc: Provocative discometry and disco gram with 4 cc non-ionic dye OMNAPAUQE done and noted for concordance of pain and internal disc morphology on disco gram.

Nerve root: Nerve root block with local anaesthetic done and noted for pain response and epidural morphology near the nerve root noted on epidurogram.

PART V: Interventional treatment: Which primarily consisted of injecting steroid, local anaesthetic and hyaluronidase mixture for facet and nerve roots and ozone for nucleolysis in cases of discogenic pain, disc prolapse or canal stenosis due to disc.

Therapeutic interventions were done at the same sitting as per the suspected diagnosis in accordance to the NRS protocol. This algorithmic approach is enumerated in the

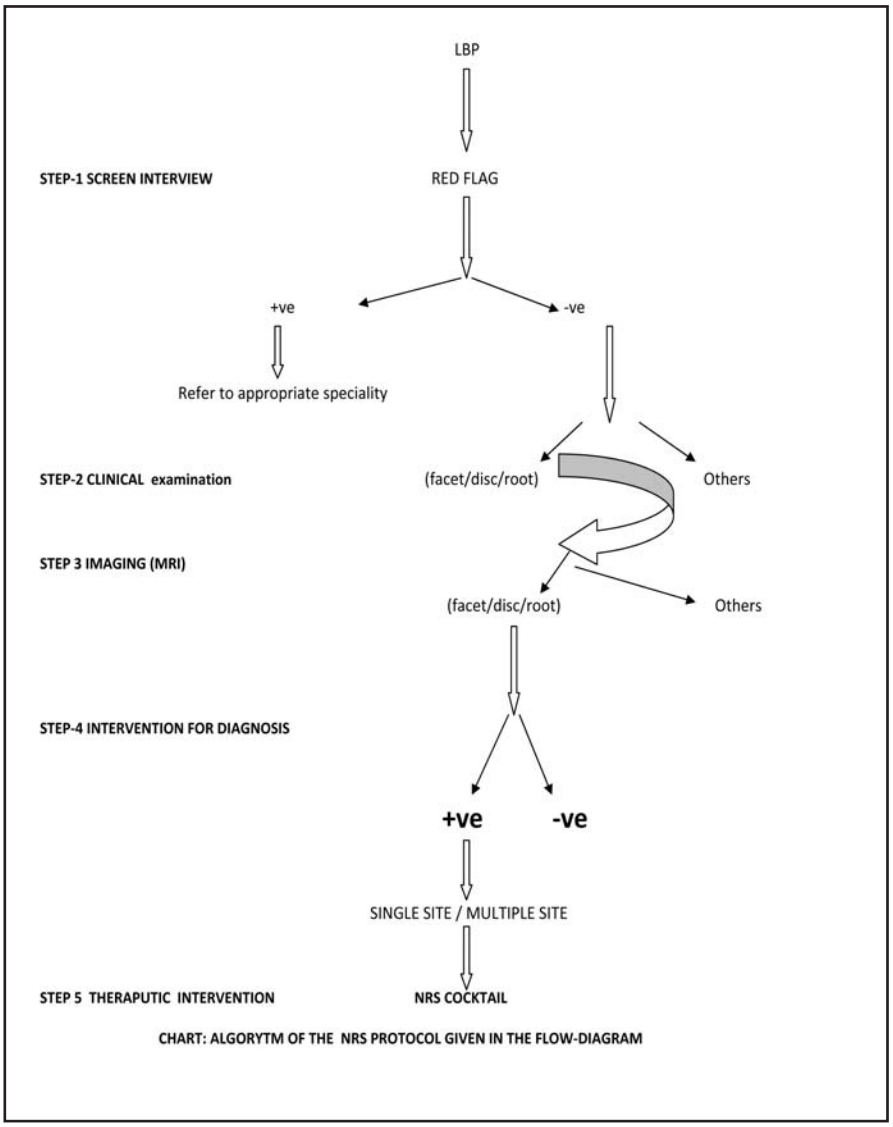


CHART: ALGORYTM OF THE NRS PROTOCOL GIVEN IN THE FLOW-DIAGRAM

Chart : Algorithm of the NRS Protocol Given in the Flow - Diagram

flow diagram of the chart.

Data were recorded on relevant scales. Our primary scale was VAS or visual analogue scale and secondary scale was a disability scale i.e. Oswestry disability index (ODI). Following codes were used. Pre-intervention scales were coded as VAS0 & ODI0, similarly at first visit it was VAS1 & ODI1 so on. We consider the protocol a success when VAS score is down to 50% of pretreatment level at the end of 6 months.

The NRS Cocktail :

We considered various drugs that can be injected under fluoroscopic guidance in a day care set up. An extensive literature search was done for possible pharmacological interventions possible in spine[16-24]. Finally we decided on a connotation of the following after a multispecialty consensus was achieved among the treating physiatrists, orthopaedic surgeons, anaesthesiologists and pharmacology faculties. Due consideration was given to the safety aspects of such interventions. Procedures were carried out in a well manned operation theatre with emergency set up. Consent of the patient was taken after full explanation of the procedure and intent of such intervention. We decided to call it NRS COCKTAIL after the institution.

FACET JOINT & ROOT BLOCK: Combination of

- Deposteroid 5 mg (Depomedrol, Pfizer Products India Pvt Ltd)
- Bupivacaine 0.25% (Anawin 0.25%, Neon Laboratories Limited, India)
- Lignocaine 2% (NI Pharmaceutical Works Pvt Ltd, India)
- Hyalurinadase (Hynidase 1500 Iu, Sheraya Pharmaceutical, India).

DISCS

- 3-7 ml of oxygen-ozone mixture concentration 29-32 mc/ml

(Generated from ozone generators of D M Enterprise,

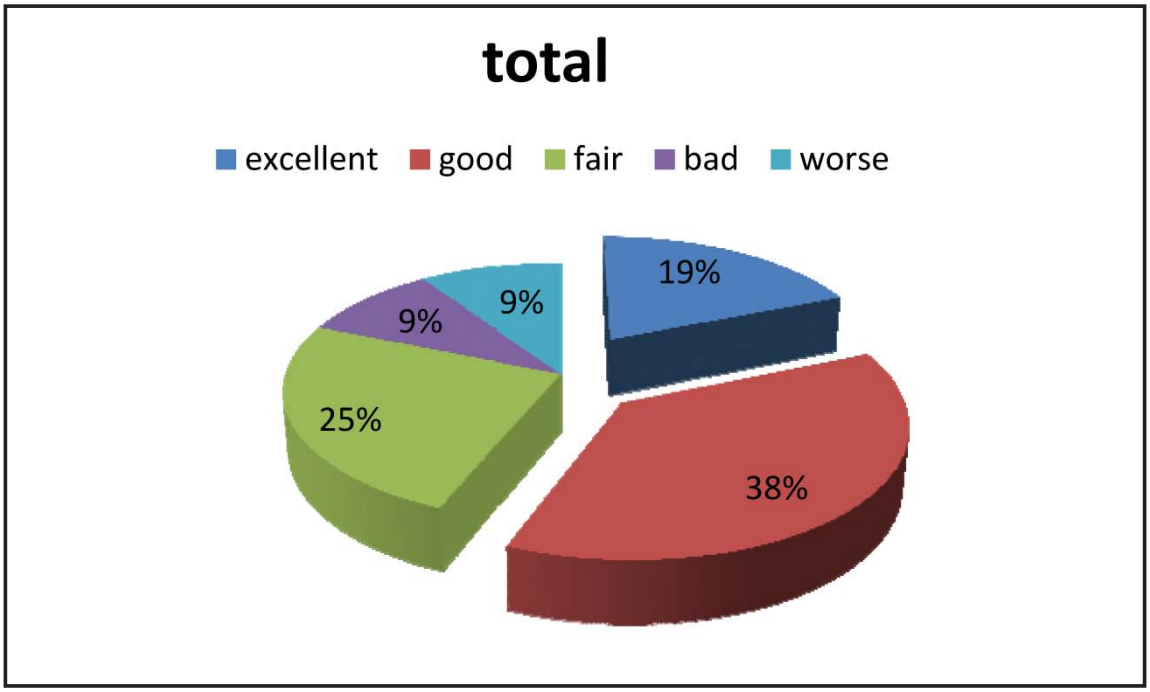
Kolkata)

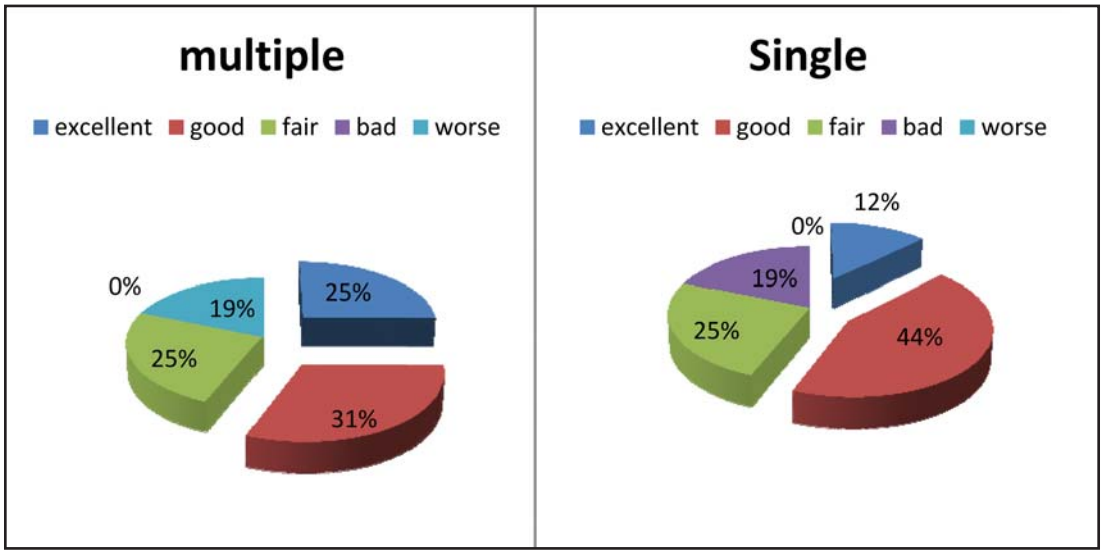
A non-ionic dye iohexol was used for delineating the nerve roots, discs and facet joint. (OMNIPAQUE 300MGI/ML, GE HEALTH CARE IRELAND)

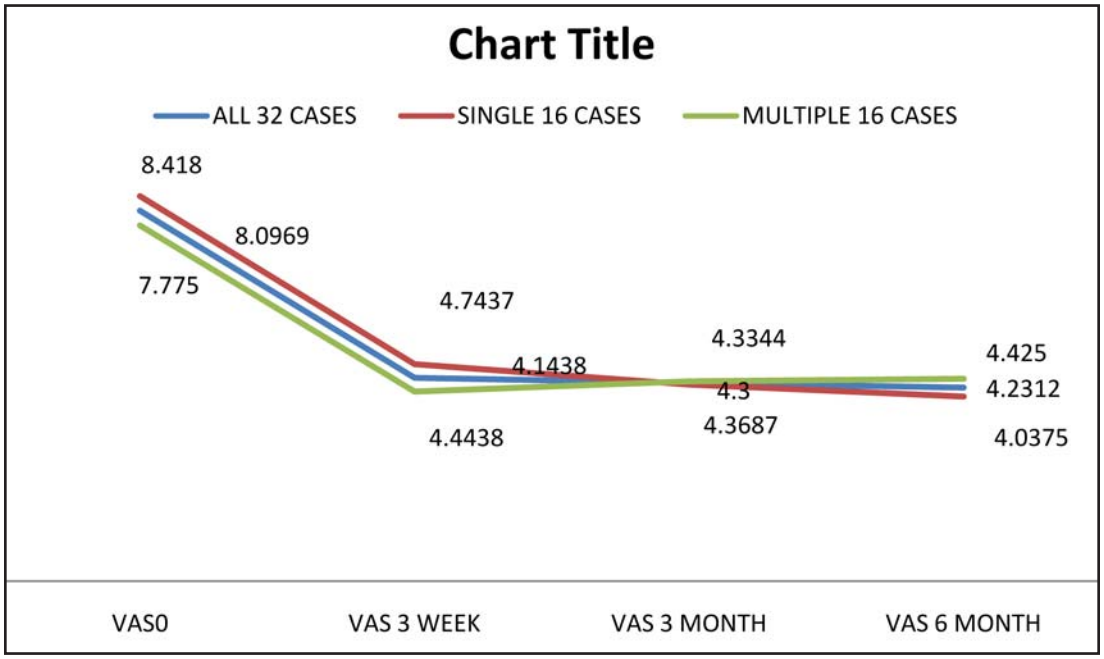
Procedural Methodology of Intervention :

Informed consent was obtained from all the patients. Intravenous cannulation was secured for emergency drugs administration in cases required. The patient was monitored by a non-invasive cardiac monitor and vital parameters were noted constantly. A stand by anaesthetic team was kept available during the whole procedure. Ceftriaxone (Xone, 1g, Alkem Laboratories Ltd) was injected intravenously after proper skin test . We did not use conscious sedation with intravenous midazolam. The patients were explained in detail about the whole procedure and were briefed about how to conduct throughout the intervention.

Patients were asked to lie down in prone position with a pillow under lower chest and upper abdomen. The needle puncture site was identified and marked on skin. After proper antiseptic dressing and draping, proposed site of needle entry was infiltrated with local anaesthetic (2% lignocaine).The procedure was performed under C-arm guidance. Anteroposterior, oblique cephalocaudal, and lateral views were used to guide appropriate needle introduction and placement at the exact site of suspected pain. A 22 gauge 12 cm long needle (spinal needle Quincke type,Vygon Laboratoires Pharmaceutical, France) was introduced in the targeted disc facet and epidural space of nerve root sleeve. The procedures are elucidated in details in the picture plate (A,B,C,D,E,F,G,H,I). In case of suspected disc diagnosis 3-7 ml of oxygen –ozone mixture at a concentration of mc/ml? was injected into the disc by ozone resistant syringe (Dispovan, Hindusthan Syringe 7 Medical Devices Ltd, India) over a period of 15-20 seconds and the patient was asked to notice concordance pain for confirming clinical and radiological diagnosis .For infiltration of facet and for root block we used cocktail of deposteroid 5mg ,bupivacaine 0.25%, lignocaine 2%, hyalurinidase 1000 IU. Volume for facet was 1.5 to 2 cc and for selective root block or transforaminal epidural volume was determined by disappearance of non-ionic contrast dye used for delineating the radicles (as shown in picture plate in figure F &G). At the end of procedure patients were advised to rest in supine decubitus position for at least 1-2 hours . After which all patients were discharged on the same day or evening. They were advised to gradually resume normal activities. All patients underwent follow-up examination at three weeks, three months and 6 months after the procedure.







RESULTS

GENERAL DESCRIPTIVE STATISTICS:

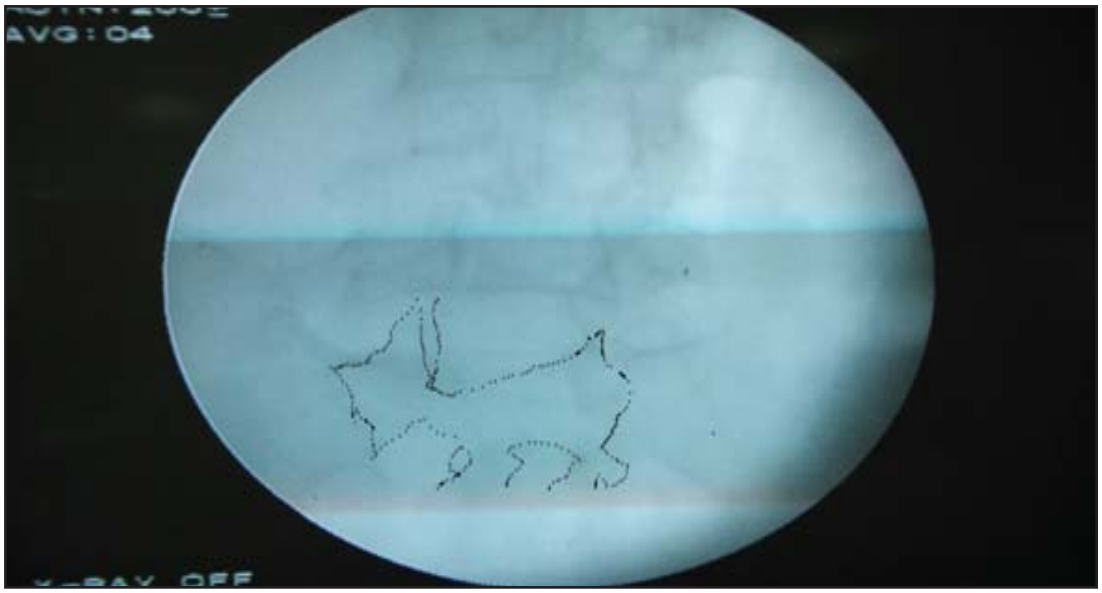
A total of 32 patients (16 male and 16 female) were included for the study with a mean age of 40 years (40 years - 71years) and mean duration of disease for about 13 month (2 months - 51 months).

Sixteen patients (9 male and 7 female) had single site pathology as suggested by a clinical or combination of clinical and MRI findings. The mean age of this group with single site diagnosis was 38 years (21 years - 54 years) with a mean duration of disease for about 9 months (3 months - 32 months). These patients received single site intervention (ie, either disc nucleolysis by ozone and root / facet block by NRS cocktail).

Again, 16 patients (7 male and 9 female) had multiple site involvement. The mean age of this group was 42 years (24 years - 71 years) with a mean duration of disease for about 17 months (2 months - 51 months).

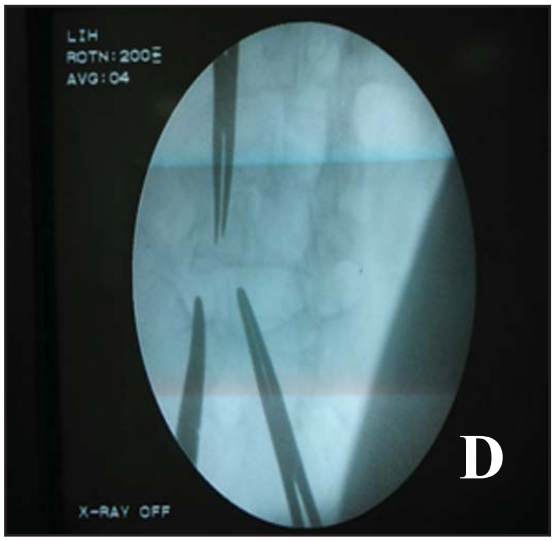
These patients received multiple site intervention (i.e. combination of either disc nucleolysis by ozone and root block / facet blocks by cocktail mix) (Table 1)

VAS: We subdivided the final % reduction from pretreatment VAS score (Table 4) as excellent those achieving 100-75% reduction ,good those with 74% to 50 %, fair those with 49-25 % reduction of pain, bad those with 24% pain score reduction and those in whom pain increased we scored them worse.

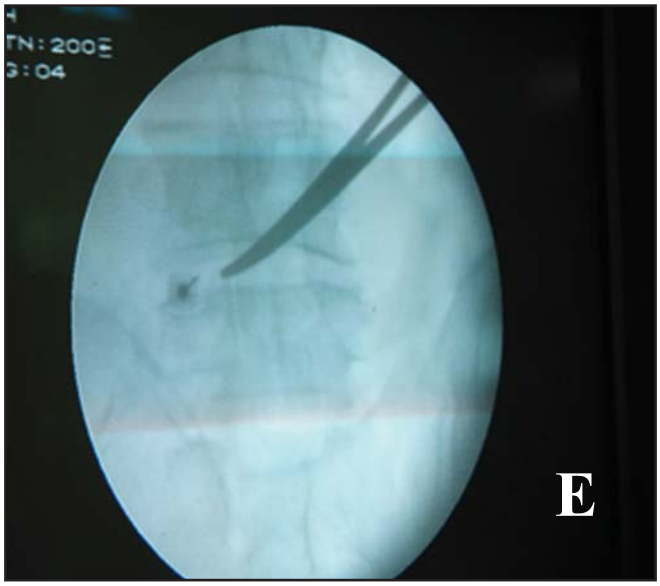


We first ascertain the exact spinal level by doing a count from cephalic to caudal and caudal to cephalic with 12th rib at cephalic level and L4/5 Lumber junction at caudal level as two pivotal land mark, first physically then under anterior-posterior fluoroscopic view.

A & B: We then hunt down the **Scotty Dog** (here L5 spine) by an oblique view of fluoroscope and adding to it cephalic or caudal tilt, till we are satisfied with the picture as per our interventional aim with target areas maximally opened for acess.



After target areas to the disc, facet or root are opened up satisfactorily we put radio opaque marker like artery forceps to guide our spinal needle into the exact site under fluoroscopic guidance. As shown in **C & D**



E Depicts gun barrel positioning or end on view of our access needle's hub.

The disc space is maximally opened up with the Scotty dog's ear in the middle of the frame and end plates of upper and lower vertebrae are squared up to give maximum area of disc.

The needle was inserted into the disc, lateral to the doggy's ear in a gun-barrel position. This ensures that the needle is targeted for the disc.

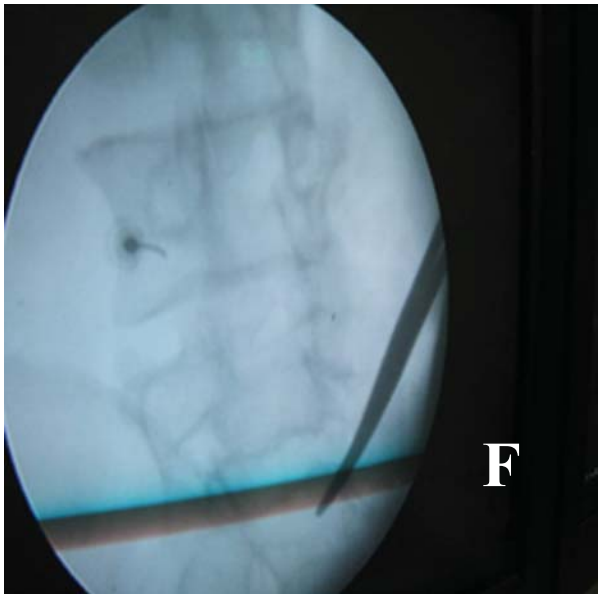
For the whole study group mean pre intervention VAS0 was 8.0969 which subsequently reduced to 4.4438 at 3 weeks and to 4.334 at 3 month and finally to 4.2312 at the 6 month period with an overall decrease of 46.8144% when we compared pre-intervention vas 0 with vas 3 at the end of the study.

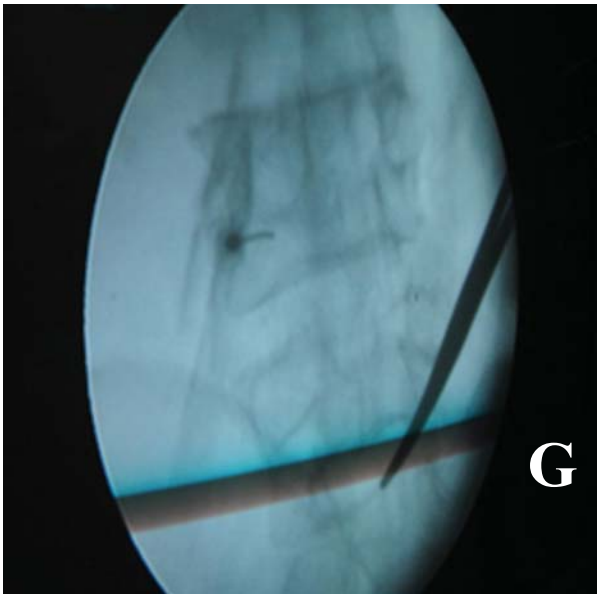
In the single intervention cases mean pre intervention vas0 was 8.4188 and at three weeks it came down to 4.7437, at three months the dip marginal continued (4.3000) and this trend continued up to 6 months period with final vas3 (4.0375) with an overall decrease of 47.2075 % when we compared pre-intervention vas0 with vas3 at the end of the study.

For multiple intervention groups VAS came down from 7.7750 to 4.1438 at 3 weeks to a slight increase at 3 months to 4.3687 finally to 4.4250 at 6 months at the end of study with an overall decrease of 46.4213 % when we compared pre-intervention VAS0 with VAS3 at the end of the study (Table 2) .

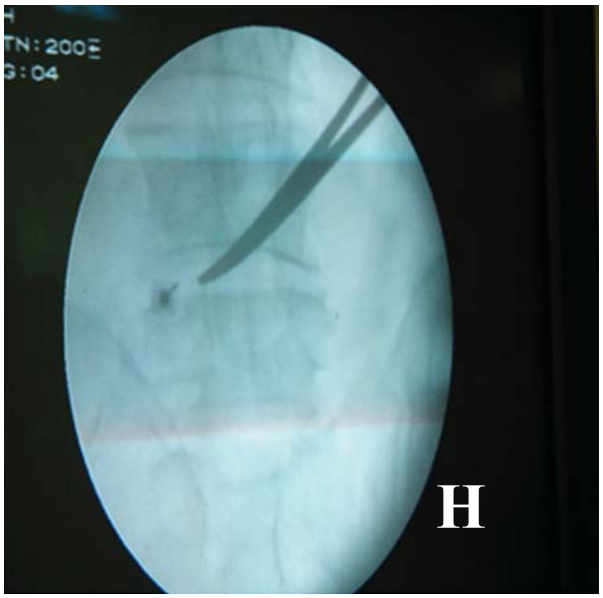
ODI: For the whole study group mean pre intervention ODI 0 of 57.6741 which subsequently reduced to 32.8578 at 3 weeks, to 31.3728 at 3 months and to 32.5603 at the 6 months period with an overall decrease of 43.6619 % when we compared pre-intervention ODI 0 with ODI 3 at the end of the study at 6 months.

For the single intervention cases mean pre intervention ODI 0 was 56.1125, at three weeks it came down to 28.5144, at three month the dip continued though marginal to 28.044 and this remained at 28.044 up to 6 months period with an overall decrease of 48.2169 % when we compared pre-intervention vas0 with vas3 at the end of the study.





F gun-barreling of the needle hub at **6 o 'clock position** just below the eye of Scotty dog. The eye represents the pedicle of the vertebrae. Once bone contact is made non ionic dye omnapaque mixed with distilled water is injected to delineate the nerve root which shows up in
G as an descending radio opaque tram line shadow. Now after the shadow of root is achieved we inject our cocktail till the shadow disappears on fluro image. This represents selective nerve root block.



H represents opened up facet obtained with an oblique view along with cranio-caudal positioning of fluoroscope. The facet is then accessed through the opened up space by gun barreling our needle.

For multiple interventions group ODI came down from 59.2356 to 37.2013 at 3 weeks to a decline at 34.7013 at 3 months and again up to 37.0763 at 6 months end period with an overall decrease of 39.1069 % when we compared pre intervention ODI0 with ODI3 at the end of the study at 6 month (Table 3).

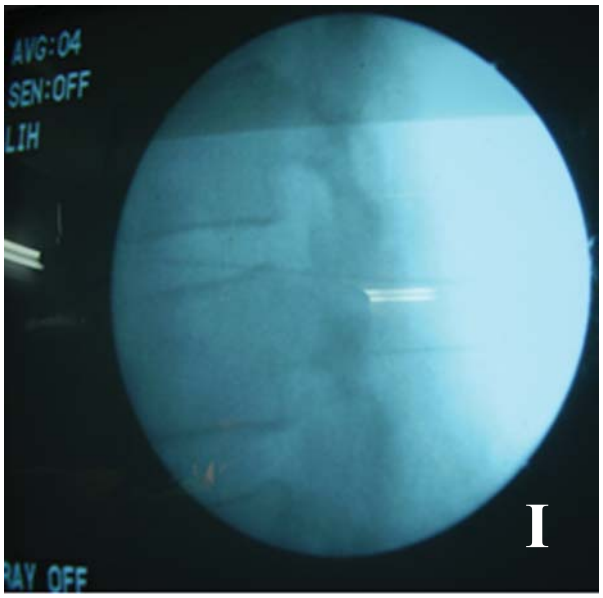
Paired 't' test :

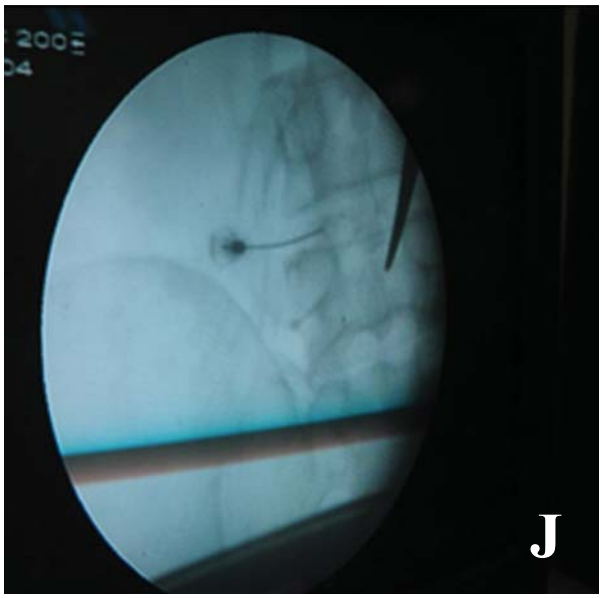
VAS: We paired VAS 0-VAS1, VAS1-VAS2 and VAS2-VAS3 to find any significant changes in score following intervention at various time points. A paired sample 't' test wás done. Results showed VAS0-VAS1 (p value=0.000), VAS1-VAS2 (p-value =0.557) and VAS2-VAS3 (p-value=0.536)

ODI: We paired ODI0-ODI1, ODI1-ODI2 and ODI2-ODI3. Results showed ODI0-ODI1 (p value=0.000.) ODI1-ODI2 (p-value =0.355) and ODI2-ODI3 (p-value=0.212)

We then pared VAS0-VAS3 and ODI0-ODI3. In both the cases p-value =0.000, Thus the treatment used brought about very significant reduction of pain and disability at 6 month end period.

Independent Sample T-test : We made two independent group one with single site diagnosis and the other with multiple site diagnosis. We compared the percent decrease





After preliminary needle position is achieved as explained above by oblique view with cephalo caudal correction we then go for check fluro –images to ascertain the correct depth as well as correct position by lateral and anterior posterior view. Lateral view in **I** shows the upper needle in the anterior 2/3rd of a disc and the lower needle at a shallower depth into the facet joint.

Antero-posterior view for confirming correct direction of needle placement has to be done. A medial disposition of the needle indicates its position in the disc as shown in **J**.

On satisfactory needle position at oblique, antero-posterior and lateral views we go for our interventions with NRS cocktail every time checking the vital parameters by a non invasive cardiac monitoring within a full resuscitation set kept ready for back up.

in VAS for the two cohorts (at treatment completion) by independent sample t-test to see if the outcome varied. We found that the result of the two groups did not vary in a statistically significant manner (p value = 0.944) and the percent decrease in ODI score for this two group at 6 months also did not vary significantly (p value = 0.441).

Discussion

The whole exercise of the study was to develop a uniform protocol for the institution in treating patients with low back pain due to facet root and discs more efficiently and economically. We considered the above mentioned three structures as a continuum under the current functional diagnostic classification system of Kirkaldy-Willis[23] which is intuitively sound and clinically co relatable. We tried to diagnose and treat each of this three components and see if the protocol is helpful in the above respect.

It should be noted that the initial presentation of symptoms can occur anywhere along this continuum, implying that sub-pain threshold degenerative changes occur throughout life. Also, degenerative changes in one motion segment may predispose to a similar process in adjacent segments. Interestingly it has been found that the aging process does not always correlate with the clinical phase of degeneration[24] hence various patient of different age group suffering from the common condition of chronic LBP from facet, root and disc can be considered as a single cohort which is what the study has exactly done by taking various age group with such pathology as a single cohort.

The lack of clinically reliable signs as demonstrated by Revel *et al*[25] and others[5,26] has been overcome by directly intervening in the suspected structure. There by this study is unique in the sense that the above continuum of Kirkaldy-Willis model is inbuilt into the diagnostic approach as well as treatment protocol. Hence the name of the protocol NRS protocol and NRS cocktail can be considered unique to the institution where we attempted to clinically explore and extend the current Kirkaldy-Willis model in light of spinal interventions.

A significant number of chronic LBP cases due to facet, nerve root and disc were diagnosed by NRS protocol.

Table 1 — *Showing age and sex distribution, single and multiple intervention*

	AGE	SEX	DISEASE DURATION
ALL PATIENTS=32	MEAN=40 MAX =71 MIN =21	M=16 F=16	MEAN=13 months MAX=51 months MIN=2 months
SINGLE INTERVENTION GROUP=16	MEAN=38 MAX =54 MIN =21	M=9 F=7	MEAN=9 month MAX=32 month MIN=3 month
MULTIPLE INTERVENTION GROUP=16	MEAN=42 MAX =71 MIN =24	M=7 F=9	MEAN=17 month MAX= 51 month MIN=2 month

Table 2 — *Changes of VAS with time*

	VAS0 preintervention	VAS 1 3week	VAS2 3 months	VAS3 6months	% decrease VAS at 6 month
ALL PATIENTS =32	Mean=8.0969 Maximum=10 Minimum=5	Mean=4.4438 Max=9.70 Min=0.3	Mean=4.3344 Max=9 Min=0.2	Mean=4.2312 Max=9 Min=0.2	46.8144%
SINGLEINTERVENTION CASES=16	Mean=8.4188 Max=10 Min=6	Mean=4.7437 Max=9.7 Min=1.50	Mean=4.3000 Max=7.20 Min=0.3	Mean=4.0375 Max=7.20 Min=0.3	47.2075%
MULTIPLE INTERVENTION CASES=16	Mean=7.7750 Max=9.80 Min=5	Mean=4.1438 Max=8.70 Min=0.3	Mean=4.3687 Max=9 Min=0.2	Mean=4.4250 Max=9.5 Min=0.2	46.4213%

This conclusion was based on the following logic. First we applied the protocol to make a diagnosis. We considered it true or false on retrospective analysis in the end of treatment at 6 months.

The justification for comparing at 6 months is based on recent systemic reviews by Saladdhi *et al*[27]. Other studies by Dilke *et al*[28], Pirbudak *et al*[29] and Carette *et al*[30] on long term effect of various combination of depot steroid and other drugs have also shown greatest improvements at 3 months of intervention.

Also the fact that depot-steroid does have ion channel blocking function was given consideration[31]. Since such effects should not be discernable after 3 months time, we could thus eliminating chances of false positive diagnosis from more central or peripheral cause.

If there is more than 50% pain relief (excellent to good) and the pain relief persisted up to 6 months we considered the case diagnosed and treated. Subsequently a very significant number of cases showed reduction of pain at the end of study. More than 57% of the patients treated had 50 % or more reduction of pain. Thus we were able to make a correct diagnosis in 57% of cases. This is very significant.

On the basis of such reasoning we wanted to compare the multiple interventions with single intervention cohort at 6 months. We found that these two cohorts responded to the protocol similarly. Since the pain reduction in these two groups were statistically very significant till the end

Table 3 — *Changes of ODI with time*

	ODI0 preintervention	ODI 1 3week	ODI 2 3 months	ODI3 6months at 6 month	% % decrease ODI
ALL=32	Mean=57.6741 Max=92 Min=17.70	Mean=32.8578 Max=84 Min=1	Mean=31.3728 Max=84 Min=.08	Mean=32.5603 Max=84 Min=0.8	43.6619%
SINGLE INTERVENTION=16 Max=92 Min=17.70	Mean=56.1125 Max=80 Min=2	Mean=28.5144 Max=78 Min=0.8	Mean=28.0444 Max=78 Min=0.8	Mean=28.0444	48.2169%
MULTIPLE INTERVENTION=16	Mean=59.2356 Max=90 Min=26	Mean=37.2013 Max=84 Min=1	Mean=34.7013 Max=84 Min=1	Mean=37.0763 Max=84 Min=1	39.1069%

Table 4

	All patients	Single	Multiple
EXCELLENT	6 (19%)	2(12%)	4(25%)
GOOD	12(38%)	7(44%)	5(31%)
FAIR	8(25%)	4(25%)	4(25%)
BAD	3(9%)	3(19%)	0
WORSE	3(9%)	0	3(19%)

of study, we were able to diagnose the exact site of pain in both these groups. Fifty-six percent of the multiple site pain were diagnosed where as fifty-eight per cent of single site pain were diagnosed by using this protocol.

Such significant number of exact site specific diagnosis had been impossible to establish previously with conventional approaches. The main reason being poor association of imaging and clinics as stated in the introduction[32,33]. Previously we also lacked the concept of applying intervention for diagnosis of pain. In the 1990's, new precision diagnostic tests have been developed, evaluated and implemented. Thus, if appropriate tests are used, a diagnosis of chronic spinal pain can be made in at least 50% of the cases, and perhaps in as many as 70% of the cases[7-9]. So in this study we were successful in showing the role of intervention as the third arm of diagnosis and the results are in agreement with published data sated before.

Having established the satisfactory diagnostic capability of intervention in the selected cohort, we wanted to find the therapeutic potentials of NRS cocktail. It was found to be effective in treatment of chronic LBP. Though sufficient reports are there for use of its each component separately like local anaesthetics (lignocaine 2% and bupivacaine 0.25 %), deposteroids, hylalurindase and ozone however literature about this connotation is not available. This has been the unique aspect of our study. We tried this entire component as per requirement of the established diagnosis.

First and foremost this cocktail was found to be safe with no immediate side-effects and no such were observed at end of study. Only few reported hypotension and bradycardia during the procedures which were transient and within the physiologic limit as recorded on a non-invasive cardiac monitor. All such cases reversed after few seconds to minutes. None had to be resuscitated or admitted post procedure. None of the component showed untoward drug-drug interaction or incompatibility. Neither did it precipitate any untoward anaesthetic toxicity. However significant improvement recorded might indicate potentiation of various components used. This can be studied in the future.

Three patients complained of postspinal headache and all recovered normally. In one patient we had to go for an epidural blood patch to control the headache. One interesting observation was a failure case that was ultimately diagnosed as neuritic Hansen disease, which our protocol was unable to diagnose. Thus it appears that an electro diagnostic arm should be thought of in future protocol design. There is also an interesting aspect of

diagnosing pathology with post discography CT which is being reported to be more sensitive for diagnosing internal disc disruption then MRI[34,35]. We certainly have planned to add this approach in the next edition of NRS protocol.

Maximum reduction of pain occurred immediately after intervention and was maintained up to final visit at 6 months. More than half achieved excellent to good results in this study.

However other studies of ozone neucleolysis, transforaminal epidural blocks and facet injections had shown even better results[20-22]. This might be due to the following facts. First these are the reports of initial 6 months of starting our physiatric intervention clinic at NRS. Second almost all of the interventionist had to be trained for the procedure which might have brought the success rates down. With skills of the faculty developing with time a better success rate can be hoped for. Thirdly in cases of facet we didn't apply the dual block strategy which is recommended by some to secure diagnosis[38].This might have diluted the result. The most encouraging thing has been the fact that even if we start from scratch, good enough results can be achieved.

Regarding disability there were significant reduction of disability observable within 3 weeks postintervention and was maintained till the end of study without any significant deterioration. However those with multiple diagnosis a marginal increase in disability at 6 months was observed when compared to ODI values at 3 months. This occurred mostly among the low socio-economic group who were compelled to do heavy work immediately after treatment. Thus not getting adequate time to heal. Most of them got back to their job despite some residual disability with significant pain reduction.

This experience is a pointer to the fact that these interventions apart from being cost effective and safe can be mastered in a very short span of time. However mastering the interpretation of fluro-image needs an exponential learning curve. We were at the flat part of the curve when the study started hence there were unavoidable biases in the Part iii of the protocol where we made our interventional diagnosis. Did it affect the results? Only future study from the same team can tell.

All positive attributes from the study makes such treatment strategy a very pertinent weapon for disability management in chronic LBP. We observed that the protocol had a universal acceptance among the poor as well as the rich patients. Hence no doubt ozone a component of our NRS cocktail has been jokingly referred to as a socialist molecule by some learned counterpart in the west.

Conclusion

The protocol was successful in making a diagnosis and was also useful in treatment of chronic LBP due to structural facet, root and disc pathology. The study population was small and there were some biases that crept in the study as this has been done on the soaring wings of a learning curve .Many interesting facet of LBP care came forward and need to be contemplated upon in the next version of NRS protocol. More data on the above approach is imperative to make it a standard physiatric practice in the coming years.

To remain competitive in business of medicine more such intervention protocol and molecules should be encouraged those that does not cut the skin or purse.

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Original Paper

Role of intra-articular ozone in osteo-arthritis of knee for functional and symptomatic improvement

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Abstract

This prospective randomised controlled study aiming to evaluate the role of intra-articular ozone in OA knee patients was conducted in pain clinic, Sambhu Nath Pandit Hospital, Kolkata from February 2008 to November 2008. One group of patients received three injections of O3 (one month apart) and other group received injection methylprednisolone and a cross over was done (ie, one injection of O3 given to those failed patients on methylprednisolone). The data was assessed and it was concluded that intra-articular injection of O_3-O_2 relieved pain, stiffness and physical disability better than intra-articular injection of methylprednisolone.

At the end of the study it was noted that when both (ozone + local anaesthetics and injection steroid + injection local anaesthetics) are given together at the intra-articular space in OA knee then that can relieve all those symptoms much more efficiently in all those cases who are refractory to conservative treatment.

key words **: Intra-articular oxygen-ozone, osteo-arthritis knee, minimal invasive procedure.**

Osteo-arthritis (OA) knee is a chronic progressive painful condition mainly affecting middle aged people. In OA main pathological changes are progressive loss of cartilage, meniscus and capsule of the joint. In the ealier age group both sexes are equally affected but later on (>50 years) females are mainly affected. Obesity, family history, high body mass index (BMI) and repeated trauma are the susceptible precipitating factors to develop OA[1].

Pain, stiffness and functional limitation of movement are other major symptoms.Restriction of joint movement, bony swelling and crepitus are common earlier signs and joint deformity occurs in advanced stage[2].

Radiological disease progression is measured by Kellgren-Lawrance (KL) Score (adapted by WHO)[3].

Osteophyte, joint space narrowing (JSN), subchondral sclerosis and cyst etc are main radiologic findings[4].

Main goal of treatment of OA are to relieve pain, to achieve optimal joint function and mobility, to educate the patients regarding avoidance of precipitating and aggravating factors, management options etc[5]. Even in the era of modern medicine there is no drug available which can cure OA. Non- pharmacological therapy like cryotherapy, heat therapy like SWD, UST, TENS, shoe modification and shock absorbing foot wear, exercise, assistive devices are helpful for symptomatic and functional improvement[6]. There is paucity of evidence regarding definite roles of symptomatic slow acting drugs of OA (SYSADOA) eg, injection hyaluronic acid and oral glucosamine and chondroitin sulfates and structure modifying mrugs (DMOAD) eg, glucosaminoglycan, doxy- and minocycline etc to reduce disease activity[6].

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Invasive management are possibly better for those patients not showing improvement after conservative management for 3-6 months, mild / no radiological deformity (KL Score ≤ 3), pain, stiffness and physical disability score (WOMAC ≥ 2 in Likert Scale / ≥ 40% in VAS) and last but not the least for those patients tried with popular minimal invasive procedures (MIP) e.g. intra-articular injection steroid + injection lignocaine + injection hyaluronic Acid[6].

Recently intra-articular injection of ozone-oxygen mixture (O_3-O_2) in therapeutic concentration (30 µg/ml of ozone in oxygen) gained popularity for relief of pain, stiffness and physical disability without any significant adverse effect. Ozone possesses bacteriostatic, fungicidal and viricidal property, that's why no antibiotic required after the procedure[7,8]. Lastly ozone has very good analgesic and anti-inflammatory property because it blocks phosphodiasterase-A2 [9, 10].

Materials and Methods

This prospective randomised, controlled, double-blind, cross-over study was conducted at Pain Clinic, PMR Department Sambhu Nath Pandit Hospital, Kolkata, West Bengal from February 2008 to November 2008. Permission of Institutional Ethical Committee and informed consent was taken from all patients before the study. Meticulous history taking and thorough clinical examination was done for every patient. Patient selection was done with following criteria

Inclusion criteria :

Patients of primary OA presents in:

Radiologically early stage i.e. KL Score ≤ 2.

WOMAC Score ≥ 2 for pain, stiffness and physical disability.

Having no other medical and/or neurological complication.

Having the symptoms of OA for at least 3 months after getting usual conservative treatment e.g. paracetamol, NSAIDs, opioids, physical therapy and Therapeutic exercises

Exclusion criteria :

Patients who are suffering from:

Secondary OA

Primary OA but:

(I) WOMAC Score < 2 in for pain, stiffness and physical disability

(II) Radiologically in advanced stage (K L Score>2).

(III) Having associated medical and / or neurological complications to any intervention eg, T_2DM-HTN,

(IV) Having contra-indication for steroid use.

Then the patients were divided randomly into two groups (group A & B). VCTC counselling and all necessary preoperative investigations were done in all patients. Both the groups received baseline conservative management like lifestyle modifications, therapeutic exercise regimen, orthosis (in case mediolateral instability), three weeks course of paracetamol (1 g thrice daily), superficial heat etc.

Apart from these, patients of group A received three injections [at first visit after randomisation, after 1month, after 2 months] of O_3-O_2 (30 µg /ml of O_3 in O_2—10 ml) + injection lignocaine (2%-2 ml). Group - B patients received one injection methylprednisolone (40 mg) + injection lignocaine (2%—2ml) at first visit after randomisation. One injection [after 3 months 2] of O_3-O_2 (30 µg /ml of O_3 in O_2—10 ml.) + injection lignocaine (2%-2 ml) was given to those patients of group B who failed to respond at first follow up.

After the procedure every patient was advised to take rest for 1-2 hours at recovery room with knee functional position, to avoid strenuous activity for 2-3 days, then to resume activity of knee joint gradually. All patients were assessed after 3 months of first injection at 1st follow-up (F.U-1) and after 6 months of first injection at the 2nd follow-up (F.U-2).

Assessment tools :

Outcome was measured by marker of success and failure comprising

(1) Overall post - treatment satisfaction assessment in patient asking...***Yes/No.***

(2) Modified Mac Nab Method of symptoms assessment.

(3) WOMAC Score of OA knee symptoms assessment for pain, stiffness and physical disability.

Based on the above mentioned markers of outcome assessment we used the following criteria of success and failure of treatment outcome in our study.

CRITERIA FOR ASSESSMENT FOR SUCCESS & FAILURE		
	SUCCESS	**FAILURE**
Overall satisfaction of patient after treatment (Yes/No)	Satisfied	Not satisfied
per format)	Excellent/Good/ fair	Mediocre/ No result /bad
WOMAC Index -Likert	< 2	> 2

modified Macnab (As

Results :

In this prospective study total numbers of patients were 46. Total 48 patients were selected but two patients (one from each group) were unable to continue the whole procedure due to their personal problems. At the end of the study it was noticed that age distribution of patient population was 38-58 years (mean age 42 ± 4). Females slightly outumbers the male group (male: female = 22:24).

It is interesting to note that group A patients responded well by ozone with a success rate of 80 % at first follow-up (3 months) and improvement sustained up to 6 months. But in group B (on methylprednisolone) patient's response rate was not so good (with success rate 60 %). Although after cross over (one injection of ozone to the failed patients at 3 months), success rate peaked up to 91% (Table 1).

Similar type of improvement pattern was noted in Modified Mac Nab Method. In this analysis it was noted that success rate for group A was initially 80% then became 90% at the end of 6 months. In group B it was topped up to 91% (at 3 months) from 60% (at 6 months) (Table 2).

Discussion

Analysis of result findings on overall post -treatment satisfaction assessment in patient, Modified Mac Nab Method, WOMAC Score (Table 3) and All Data together in Table 4 strengthen the hypothesis that invasive technique like intra-articular ozone therapy is an effective

Table 1 — *Overall Post-Treatment Satisfaction (Responding Yes/No)*

	Group-A (No of Cases)		**Group-B (No of Cases)**	
	1st follow-up (3 months)	**2nd Follow-up (6 months)**	**1st Follow-up (3 months)**	**2ndFollow-up (6 months)**
Success	**18 (80%)**	**20 (90%)**	**14 (60%)**	**21 (91%)**
Failure	**5 (20%)**	**3 (10%)**	**9 (40%)**	**2 (9%)**
TOTAL	**23 (100 %)**	**23(100 %)**	**23(100 %)**	**23(100 %)**

Table 2 — *DATA in Modified Mac Nab Method*

	Group-A (No of Cases)				**Group-B(No of Cases)**			
	1st follow-up (3-months)		**2nd follow-up (6-months)**		**1st follow-up (3-months)**		**2nd follow-up (6-months)**	
Success	**10 (E) 6 (G) 2 (F)**	**80 %**	**14 (E) 4 (G) 2 (F)**	**90 %**	**9 (E) 3 (G) 2 (F)**	**60 %**	**13 (E) 4 (G) 4 (F)**	**91%**
Failure	**3 (M) 2 (NR)**	**20 %**	**2 (M) 1(NR)**	**10 %**	**5 (M) 3(NR) 1(B)**	**40 %**	**1 (M) 1(NR)**	**9%**
—		—					—	

Table 3 — *WOMAC Score*

	GROUP-A(n)			GROUP-B(n)		
	0-Day	1st FU	2nd FU	0-Day	1st FU	2nd FU
Pain :						
Extreme	1	—	—	1	1	—
Severe	17	2	1	16	6	1
Moderate	5	3	2	6	2	1
Slight	—	15	5	—	10	10
Nil	—	3	15	—	4	11
Stiffnness :						
Extreme	1	1	—	1	1	—
Severe	15	2	1	15	6	1
Moderate	7	2	2	7	2	1
Slight	—	14	6	—	11	9
Nil	—	4	14	—	3	12
Physical disability :						
Extreme	1	—	—	1	1	—
Severe	14	1	—	13	4	1
Moderate	8	4	3	9	4	1
Slight	—	14	4	—	12	8
Nil	—	4	16	—	2	13

of OA knee. There are evidences which showed intra-articular ozone has bacterostatic, viricidal, anti-inflammatory property.

According to Quing and Feng[7] it is much safer agent in OA knee for relief of all those symptoms. Similarly it was established by Gheza *et al*[11], it is a simple technique with no complication for pain relief in knee pain particularly in early OA and other soft tissue inflammation also. Our study also supported this data. According to our study is significant success rate (80% after 3 months, 90% after 6 months) with intraarticular O3 injections to the patient of group A. On the other hand methyl prednisolone is not so effective to reduce symptoms of OA (success rate 60% after 3 months). But interestingly success rate improved dramatically after one injection of O_3 to those failed patients on methylprednisolone. Two patients were unable to continue the study. Among the failure patients of gr.-B in 1st follow-up, 80 % shows success after cross over with injection O_3-O_2 mixture.

Intraarticular injection of O_3-O_2 + injection lignocaine relieves pain, stiffness and physical disability better than intra-articular injection of methylprednisolone + injection lignocaine. When both are given together (crossover) reliefs of all those symptoms much more efficiently than either of the procedure.

At the end of study it can be concluded that intraarticular ozone is definitely helpful to reduce pain, stitiffness, disability. Intra-articular ozone therapy has better efficacy than intra-articular methylprednisolone. But when both (Ozone + local anaesthetics and injection steroid + injection local anaesthetics) are given together at the Intra-articular space in OA knee then that can relief all those symptoms much more efficiently in all those cases who are refractory to conservative treatment.

FOOT NOTES: KL Score= Kellgren –Lawrence score, WOMAC= Western Ontario and McMaster University, OA= Osteoarthritis, MM & DR=Clinicians involved in assessment of patients during follow up after the procedures.

Table 4 — *All Data Together*

	GROUP-A				GROUP-B			
	1st Follow Up		2nd Follow Up		1st Follow Up		2nd Follow Up	
	S	F	S	F	S	F	S	F
Post-treatment satisfaction (Y/N)	**18 (80%)**	**5 (20%)**	**20 (90%)**	**3 (10%)**	**14 (60%)**	**9 (40%)**	**21 (91%)**	**2 (9%)**
WOMAC	**18 (80%)**	**5 (20%)**	**20 (90%)**	**3 (10%)**	**14 (60%)**	**9 (40%)**	**21 (91%)**	**2 (9%)**
Modified Mac Nab	**18 (80%)**	**5 (20%)**	**20 (90%)**	**3 (10%)**	**14 (60%)**	**9 (40%)**	**21 (91%)**	**2 (9%)**

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Medical Philately

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A referred case of AVN of femoral head for rehabilitation

*A K Palit**

- A 40 years old male from Bangladesh presented in PMR OPD with chief complains of pain around the left hip and left groin for 4-5 years along with difficulty in walking.
- X-ray presented to the OPD

Patient is a maker of earthen idols. Normally he does most of his profession in squatting position. He noticed gradual development of pain in left groin and difficulty in rising up from the ground.After closed questionaries' an interesting history was revealed that since childhood patient noticed shortness of structures on right side of the body. Right upper limb more prominently shorter than lower limb .Now he cannot squat or sit cross-legged properly resulting in restriction of his occupation.Patient feels difficulty in right upper limb after working for some time. He didn't complain about any respiratory distress or chest pain.

General survey

Fig. 1

Fig. 2

Fig. 3

Fig. 4

It was seen that right ear smaller ½ cm. than left with hypoplastic right mandible. Interestingly it was noticed that lower incisors are receding may be due to mandibular pathology (Figs 1 to 4)

* Associate Professor PMR, IPGME&R Kolkata.

On further examination of trunk:


Fig. 5


Fig. 6


Fig. 7


Fig. 8

Examination :

Right arm (acromion to lateral epicondyle) length was 20 cm which was much shorter than left (27cm), (Figs 5 to 8), On further inspection of lower half of body:


Fig. 9


Fig. 10

Here we noticed that sacral dimple was less prominent on right side without any definite scoliosis. Right lower limb was slightly healthier than left (Figs 9 & 10). Apparently pelvic obliquity was seen (? due to smallness of sacrum on one side). There was neither any limb length discrepancy nor any neurodeficit in lower limbs. But left hip ROM was grossly restricted in all directions including a fixed flexion deformity of 10-15 degrees (by Thomas's test). Squatting and cross-legged sitting not possible and patient had an antalgic gait pattern.

X -ray : It was noticeable that sacrum on right side is smaller with obscured right sacro-iliac joint and scoliosis in lumbosacral spine .MRI of pelvis and hip showed irregularity of femoral head likely to be AVN (Figs 11 to 12)

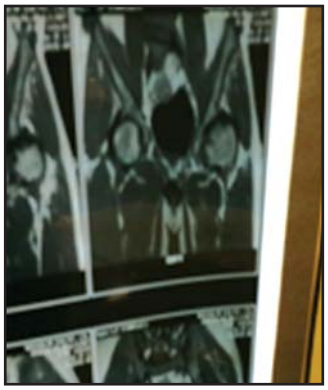
Fig. 11


Fig. 12

All the biochemical parameters were normal and no evidences of tuberculosis were present. Patient was put on active/assistive ROM of left hip and isometric strengthening exercise of hip abductor and extensor along with hip abduction orthosis. Opinion from readers about their experience regarding any association between hemi atrophy and AVN.

REHAB CHALLENGES

A young male of 27 years working as a garage mechanic complains of chronic low back pain for more than 5 years which aggravated recently after lifting heavy weight. The pain is localised to the right side of lower back which is radiated upto the back of mid-thigh .The pain aggravates on extension, lateral bending and rotation. While straightening from bend position to erect posture he feels a sharp catch and he also complained of similar pain at night while turning in the bed along with disturbance of sleep and loss of work due to pain.

On examination there were no neurological abnormality. There is a tender point on palpation at the paraspinal area at the right side in L4/5 level. X-ray showed slight grade 1 spondylolisthesis at L4/5 level. He had an MRI done which revealed disc prolapse at L3 / L4, L4 / 5, L5 / s1.Electrodiagnostic study and other biochemical markers were normal.

The patient was put on NSAIDs, muscle relaxant and antidepressants .He was also on lumbosacral brace and static spinal exercise regimen. After 48 hours treatment of conservative regimen, theVAS score of pain was 7 and he was unable to perform his normal ADL.

Opinion from reader regarding intervention of choice for his rehabilitation at this juncture.

NB : Please send the opinion to the editor with your name, address of communication. The right responder will be acknowledged in next issue of journal.

REHAB QUIZ

1. Drug used in facet intra-articular facet joint injection is

A) Bupivacaine 0.25%
B) Bupivacaine 0.5%
C) Bupivacaine 0.75%
D) Bupivacaine 1.25%

2. Percuteneous discectomy is indicated in

A) PIVD extrusion
B) PIVD protrusion
C) PIVD sequestration
D) None

3. All diagnostic selective nerve root block is helpful in refered pain to chest except

A) C6
B) C7
C) C8
D) T1

4. Intradiscal injection is indicated in coccydynia with

A) Most painful area over tip
B) Spicule
C) Absence of radiologic lesion in dynamic film
D) Dynamic film confirmation of luxation or hypermobility.

5. All are contra-indications of intra-articular hyaluronic acid in OA knee except

A) Ligamentous laxity
B) DM
C) Bleeding diatheses
D) Allergy (avion)

6. Which interventions are indicated if back and thigh pain more then leg pain in case of degenerative spondylolysthesis of L4/L5

A) Transforaminal ESI
B) Caudal epidural
C) L4-5 facet joint block
D) All

7. Ozone therapy are inditicated in all except

A) Knee OA
B) AVN of femoral head
C) Multilevel PIVD
D) Shoulder pathology

8. Most curative mode of intervention in facet joint arthropathy

A) Laser
B) IDET technique
C) Radiofrequency ablation
D) Vertibroplasty

9. Botulinium toxin A acts by

A) Preventing release of Ach
B) Preventing uptake of Ach
C) Preventing release of Adrenaline
D) Preventing uptake of Adrenaline

10. In a spastic paraplegic patient perineal hygine is better maintained by phenol block of

A) Femoral nerve
B) Sciatic nerve
C) Obturator nerve
D) Post-tibial nerve.

Please send the answer to the editor with your name, address of communication. The right responder will be acknowledged in next issue of journal.

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