PMR BUZZ

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Loss of smell in patients with traumatic brain injury is associated with neuropsychiatric behavioral alterations.

Langdon C, Laxe S, Lehrer E, Berenguer J, Alobid I, Quintó L, Mariño-Sánchez F, Bernabeu M, Marin C, Mullol J.
Brain injury. 2021 Oct 10:1-7.

Objective

We sought to identify and correlate the severity of traumatic brain injuries (TBIs) associated with olfactory dysfunction with cognitive and behavioral profiles.

Participants and Setting

Patients with TBI undergoing treatment in a specialized neuro-rehabilitation hospital.

Design

Prospective study.

Main Measures

Glasgow Coma Scale (GCS) at the time of injury and during posttraumatic amnesia. Motor functions were assessed with the Functional Instrument Measure and Disability Rating Scales. The Wechsler Adult Intelligence test was used for neuropsychologic assessment and the Neuropsychiatric Inventory was used to assess behavioral changes. The Barcelona Smell Test-24 was used to study subjective smell loss.

Results

A total of 111 patients with TBI were enrolled (33 females; mean age 32.86 years); 38.73% exhibited smell loss. Patients with no olfactory impairment (OI) had worse TBIs than those with OI (GCS scores 5.65 and 7.74, respectively); no significant differences in cognitive behaviors, such as attention memory, visuoperception, and visuoconstruction, were observed. However, patients with TBI and olfactory dysfunction showed statistically significant alterations in neuropsychiatric behavioral performances such as feeding when compared with patients with TBI without smell loss.

Conclusion

Olfactory dysfunction in patients with a TBI correlates with altered neuropsychiatric behavioral performances such as feeding, sleeping, and motor behavior.

Prognostic utility of serum biomarkers in intracerebral hemorrhage: a systematic review.

Troiani Z, Ascanio L, Rossitto CP, Ali M, Mohammadi N, Majidi S, Mocco J, Kellner CP.
Neurorehabilitation and Neural Repair. 2021 Nov;35(11):946-59.

Background

Intracerebral hemorrhage (ICH) accounts for 10–20% of all strokes and is associated with high morbidity and mortality. Recent studies have identified serum biomarkers as a means to improve outcome prognostication in poor grade ICH patients. Poor prognosis of ICH patients and complex pathophysiology of the disease necessitate prognostic serum biomarkers to help guide treatment recommendations.

Objective

The objective is to systematically review all biomarkers used to predict long-term functional outcome in patients with spontaneous intracerebral hemorrhage.

Results

We identified 36 studies investigating the predictive utility of 50 discrete biomarkers. Data from 4865 ICH patients were reviewed. Inflammatory biomarkers (11/50) were most often studied, followed by oxidative (8/50), then neuron and astrocyte-specific (7/50). S100 calcium binding protein B, white blood cell count, and copeptin were the most often studied individual biomarkers. The prognostic utility of 23 biomarkers was analyzed using receiver operating characteristic curves. Area under the curve (AUC) values for all available biomarkers except neutrophil/lymphocyte ratio were acceptable. Twenty of the 23 biomarkers were characterized by at least one excellent AUC value. Vascular endothelial growth factor, glial fibrillary astrocyte protein, and S100 calcium binding protein B were characterized by outstanding AUC.

Conclusions

We identified the inflammatory and neuron and astrocyte-specific biomarker categories as having the greatest number of significant individual biomarker predictors of long-term outcome. Further investigation utilizing cross-validation of prediction models in a second independent group and blinded assessment of outcomes for the predictive utility of biomarkers in patients with ICH is warranted.

Relationship between lower limb function and functional connectivity assessed by EEG among motor-related areas after stroke.

Hoshino T, Oguchi K, Inoue K, Hoshino A, Hoshiyama M.
Topics in Stroke Rehabilitation. 2020 Dec 24:1-9.

Background

Neural connectivity in brain has been known as indicators for neural function and recovery of brain. Although previous studies reported that neural connectivity predicted the recovery of upper limb function after stroke, the relationship between neural connectivity and lower limb function has not been clear.

Objectives

To clarify whether functional connectivity (FC) assessed by electroencephalographiy (EEG) with five electrodes placed on motor-related areas could be related to the functional motor recovery of the lower limbs in patients after stroke.

Methods

Twenty-four patients with stroke during the recovery phase were recruited. Motor function of the lower limbs was assessed using Fugl-Meyer Assessment lower limb section (FMAL). EEG signals were recorded by five electrodes (C3, C4, FC3, FC4, and FCz) at rest and during ankle movement. Amplitude envelope correlations, as values for FC, were calculated in □ (8–12 Hz), □ (13–30 Hz), low-□ (13–19 Hz), and high-□ (20–30 Hz) frequency bands. The predictive regression equation of the FMAL score in the eighth week after stroke (8 W) was created by FCs in the fourth week (4 W).

Results

The higher intra-hemispheric FC in both hemispheres in the resting state and during the ankle movement at 4 W was related to a higher lower limb function at 8 W. Additionally, the higher inter-hemispheric FC between M1 on both sides during the ankle movement was related to a higher function recovery.

Conclusions

The intra- and inter-hemispheric FC among motor-related areas at 4 W after stroke might be related to the functional recovery of the lower limbs at 8 W.

The Impact of Opioid Medications on Sleep Architecture and Nocturnal Respiration During Acute Recovery From Moderate to Severe Traumatic Brain Injury: A TBI Model Systems Study.

Adams RS, Martin AM, Almeida EJ, Starosta AJ, Hammond FM, Hoffman JM, Schwartz DJ, Fann JR, Bell KR, Nakase-Richardson R. Journal of Head Trauma Rehabilitation. 2021 Sep;36(5):374-87.

Objectives

To describe patient and clinical characteristics associated with receipt of opioid medications and identify differences in sleep quality, architecture, and sleep-related respiration between those receiving and not receiving opioid medications.

Setting

Acute inpatient rehabilitation care for moderate to severe traumatic brain injury (TBI).

Participants

A total of 248 consecutive admissions for inpatient rehabilitation care following moderate to severe TBI (average age of 43.6 years), who underwent level I polysomnography (PSG) (average time since injury: 120 days) across 6 sites.

Design

Cross-sectional, secondary analyses.

Main Measures

The PSG sleep parameters included total sleep time (TST), sleep efficiency (SE), wake after sleep onset, rapid eye movement (REM) latency, sleep staging, and arousal and awakening indices. Respiratory measures included oxygen saturation, central apnea events per hour, obstructive apnea and hypopnea events per hour, and total apnea-hypopnea index.

Results

After adjustment for number of prescribed medication classes, those receiving opioid medications on the day of PSG experienced increased TST relative to those not receiving opioid medications (estimated mean difference [EMD] = 31.58; 95% confidence interval [CI], 1.9-61.3). Other indices of sleep did not differ significantly between groups. Among respiratory measures those receiving opioids on the day of PSG experienced increased frequency of central sleep apnea events during total (EMD = 2.92; 95% CI, 0.8-5.0) and non-REM sleep (EMD = 3.37; 95% CI, 1.0-5.7) and higher frequency of obstructive sleep apnea events during REM sleep (EMD = 6.97; 95% CI, 0.1-13.8). Compared with those who did not, receiving opioids was associated with lower oxygen saturation nadir during total sleep (EMD = –3.03; 95% CI, –5.6 to –0.4) and a greater number of oxygen desaturations across REM (EMD = 8.15; 95% CI, 0.2-16.1), non-REM (EMD = 7.30; 95% CI, 0.3-14.4), and total sleep (EMD = 8.01; 95% CI, 0.8-15.2) Greater total apnea-hypopnea index was observed during REM (EMD = 8.13; 95% CI, 0.8-15.5) and total sleep (EMD = 7.26; 95% CI, 0.08-14.4) for those receiving opioids.

Conclusion

Opioid use following moderate to severe TBI is associated with an increase in indicators of sleep-related breathing disorders, a modifiable condition that is prevalent following TBI. As sleep-wake disorders are associated with poorer rehabilitation outcomes and opioid medications may frequently be administered following traumatic injury, additional longitudinal investigations are warranted in determining whether a causal relation between opioids and sleep-disordered breathing in those following moderate to severe TBI exists. Given current study limitations, future studies can improve upon methodology through the inclusion of indication for and dosage of opioid medications in this population when examining these associations.

Ultrasound-guided perineural vs. peritendinous corticosteroid injections in carpal tunnel syndrome: a randomized controlled trial.

Kamal Mezian, Karolína Sobotová, Martin Kuliha, Ke-Vin Chang, Jiří **Ceé, Yvona Angerová, Levent Özçakar**
European Journal of Physical and Rehabilitation Medicine 2021 October;57(5):775-82

Background

Corticosteroid injections are proven to be effective in the management of carpal tunnel syndrome (CTS); however, the optimal injection site still remains unclear.

Aim

The aim of this study is to compare the efficacy of perineural vs. peritendinous target sites for corticosteroid injection in CTS.

Design

A randomized, single-blind, controlled trial.

Setting

Outpatients, tertiary care center.

Population

Forty-six patients were equally randomized into two intervention groups as group A (18 female and five male patients; mean age: 50.0±15.9 years; mean symptom duration: 5.9±3.3 months) and group B (19 female, four male patients; mean age: 54.3±15.0 years; mean symptom duration: 5.9±4.7 months).

Methods

Methylprednisolone acetate (40 mg) and 1 mL of 1% trimecaine hydrochloride was injected next to the median nerve (group A) or among flexor tendons away from the nerve (group B) under ultrasound (US) guidance. The visual analogue scale was used as the primary outcome measure, and the symptom severity scale and functional status scale of the Boston Carpal Tunnel Questionnaire were used as the secondary subjective outcome measures. Two-point discrimination, grip strength, cross-sectional area, and distal motor latency were assessed as objective outcome measures. The data were collected at baseline and at 2, 6 and 12 weeks after the injection.

Results

Both groups showed improvement in subjective and objective measures at 2 weeks following the injection - also maintained up to 12 weeks during the follow-up ($P<0.05$). However, no difference was observed between the two groups ($P<0.05$). No serious adverse effects were observed in either group.

Conclusions

Both intervention techniques seem to be effective and safe in the conservative treatment of CTS.

Clinical rehabilitation impact

Based on this study results, it might be noteworthy that physicians can opt for perineural or peritendinous injections without compromising the treatment efficacy and safety. Herewith, US guidance is, for sure, necessary for performing safe and accurate injections.

The effectiveness of hyaluronic acid injection in the treatment of lateral epicondylitis among adults: A systematic review.

Roberto F Calupitan, Carl Froilan D. Leochico, Gilmore C Senolos, Reynaldo R Rey-Matias
JISPRM, Year: 2021 | Volume: 4 | Issue: 4 | Page: 191-197

Background

Lateral epicondylitis is common and may negatively impact activities of daily living. Currently, various conservative treatments are available including physiotherapy, pharmacotherapy, and interventional physiatry. Among the interventional procedures, periarticular hyaluronic acid (HA) injection is an emerging treatment option, but it lacks firm evidence to support its use.

Objective

The objective of the study was to determine the effectiveness and safety of HA in reducing pain and improving function of patients with lateral epicondylitis.

Methods

We conducted a systematic review in January 2020. Randomized controlled trials identified from various electronic databases were included if they involved the following: Adults with lateral epicondylitis, periarticular injection of HA with or without other medications, and reported outcomes on pain, function, and adverse effects. Assessment of risk of bias was performed using the Cochrane Collaboration Tool. Pertinent data were extracted from the eligible studies for data analysis.

Results

Among the 42 studies identified, we included two trials with a total of 388 participants followed up within 6–12 months. The trials employed similar techniques in administering HA, although they used different doses and preparations. The control groups used either normal saline or corticosteroid. In both trials, there were statistically significant improvements in pain and function in favor of HA. No serious adverse event was reported.

Conclusion

Albeit with promising intermediate and long-term effects for lateral epicondylitis, HA remains to have limited evidence regarding its effectiveness and safety. We recommend further research to determine the most optimal HA preparation, dosage, and technique for lateral epicondylitis that will help standardize our procedures.

Keywords

Hyaluronic acid, injection, pain, physical medicine and rehabilitation, systematic review, tennis elbow.

Effectiveness of task-specific training using assistive devices and task-specific usual care on upper limb performance after stroke: a systematic review and meta-analysis.

Samantha G. Rozevink, Juha M. Hijmans, Koen A. Horstink, Corry K. van der Sluis.
Disabil Rehabil Assist Technol. 2021 Nov 17;1-14

Abstract

Purpose

Task-specific rehabilitation is a key indicator for successful rehabilitation to improve the upper limb performance after stroke. Assistive robotic and non-robotic devices are emerging to provide rehabilitation therapy; however, the effectiveness of task-specific training programs using assistive training devices compared with task-specific usual care training has not been summarized yet. Therefore, the effectiveness of task-specific training using assistive arm devices (TST-AAD) compared with task-specific usual care (TSUC) on the upper limb performance of patients with a stroke was investigated. To assess task specificity, a set of criteria was proposed: participation, program, relevant, repeated, randomized, reconstruction and reinforced.

Materials and methods

Out of 855 articles, 17 fulfilled the selection criteria. A meta-analysis was performed on the Fugl-Meyer Assessment scores in the subacute and chronic stages after stroke and during follow-up.

Results and conclusion

Both TST-AAD and TSUC improved the upper limb performance after stroke. In the sub-acute phase after stroke, TST-AAD was more effective than TSUC in reducing the upper limb impairment, although findings were based on only three studies. In the chronic phase, TST-AAD and TSUC showed similar effectiveness. No differences between the two types of training were found at the follow-up measurements. Future studies should describe training, device usage and criteria of task specificity in a standardized way to ease comparison.

Implications for rehabilitation

- Arm or hand function is often undertreated in stroke patients, assistive training devices may be able to improve the upper limb performance.
- Task-specific training using assistive devices is effective in improving the upper limb performance after stroke.
- Task-specific training using assistive devices seems to be more effective in reducing impairment compared with task specific usual care in the subacute phase after stroke, but they are equally effective in the chronic phase of stroke.

Do improvements in upper extremity motor function affect changes in bladder management after cervical spinal cord injury?

Christopher S. Elliott, Caleb Seufert, Dimitar Zlatev, Evgeniy Kreydin, James Crew & Kazuko Shem.
J Spinal Cord Med. 2021 Nov 18:1-7

Abstract

Introduction

One of the most important predictors of clean intermittent catheterization (CIC) adoption after spinal cord injury (SCI) is upper extremity (UE) motor function at discharge from rehabilitation. It is not clear however if post-discharge improvements in UE motor function affect future bladder management decisions.

Methods

We assessed persons with cervical SCI in the National Spinal Cord Injury Dataset for the years 2000–2016 who underwent motor examination at discharge from rehabilitation and again at 1-year follow-up. Individuals were stratified based on a previously described algorithm which categorizes the ability to independently perform CIC based upon UE motor scores. Improvements in the predicted ability to self-catheterize over the first year after rehabilitation discharge were evaluated in relation to bladder management.

Results

Despite 15% of our SCI cohort improving from "less than able to independently catheterize" to "able to independently catheterize", more patients in the overall cohort dropped out of CIC (175/643 = 27.2%) than adopted CIC (68/548 = 12.4%) ($P < .001$). We found that in those initially categorized as "less than able to independently catheterize" at the time of rehabilitation discharge, CIC adoption was not significantly different at 1-year follow-up whether or not there was motor improvement to "able to independently catheterize" (12.7% vs 9.2% respectively, $P = 0.665$). Between these two groups, CIC dropout was also equivalent (34.3% vs 30.0% respectively, $P = 0.559$).

Conclusions

In the first year after rehabilitation, more overall SCI patients transition away from CIC than convert to CIC. Significant improvements in UE motor function during the first year after rehabilitation discharge do not appear to affect bladder management decisions.

Evaluation of hip precautions following total hip replacement: a before and after study.

Courtney J. Lightfoot, Khosrow R. Sehat, Carol Coole, Gary Drury, Joanne Ablewhite & Avril E. R. Drummond.
Disability and Rehabilitation. 2021; 43(20): 2882-2889.

Abstract

Purpose

To evaluate the effect of hip precautions following total hip replacement (THR) by comparing outcomes of patients who received hip precautions with those who did not.

Methods

Before (phase 1) and after (phase 2) study with two consecutive cohorts of patients. In phase 1, patients were strictly educated about hip precautions. In phase 2, patients were not advised about precautions but encouraged to move as able. The primary outcome was the Oxford Hip Score (measuring pain and function) at three months. Secondary outcomes included Oxford Hip Score, activities of daily living (ADLs) (Nottingham Extended Activities of Daily Living), sleep (Pittsburgh Sleep Quality Index), mood (Hospital Anxiety and Depression Scale), and quality of life (QoL) (EQ-5 D).

Results

A total 237 participants successfully underwent THR surgery, 118 participants in phase 1 and 119 in phase 2. At three months postoperatively, participants had significantly equivalent Oxford Hip Scores (MD=–0.82, 95% CI: –2.64 to 1.00). No significant differences between the groups were observed at six weeks and three months postoperatively for secondary outcomes.

Conclusions

Patients recovered at a similar rate regardless of whether they received hip precautions or not, with no increase in complications observed. The findings lend evidence to support decision-making around the removal of precautions.

Implications for rehabilitation

- The use of no hip precautions resulted in no additional benefit following primary total hip replacement surgery in terms of functional recovery.

Burden of chronic low back pain: Association with pain severity and prescription medication use in five large European countries.

Serge Perrot, Michael J Doane, Dena H Jaffe, Erika Dragon, Lucy Abraham, Lars Viktrup, Andrew G Bushmakin, Joseph C Cappelleri, Phillip G Conaghan
Pain Pract 2021 Nov 15;00:1-13.

Abstract

Objective

This study assessed associations between severity of, and prescription medication use for, chronic low back pain (CLBP) and health-related quality of life, health status, work productivity, and healthcare resource utilization.

Methods

This cross-sectional study utilized SF-12, EQ-5D-5L, and work productivity and activity impairment (WPAI) questionnaires, and visits to healthcare providers among adults with self-reported CLBP participating in the National Health and Wellness Survey in Germany, France, UK, Italy, and Spain. Respondents were stratified into four groups according to pain severity (mild or moderate/severe) and prescription medication use (Rx-treated or Rx-untreated). Differences between groups were estimated using generalized linear models controlling for sociodemographics and health characteristics.

Results

Of 2086 respondents with CLBP, 683 had mild pain (276 Rx-untreated, 407 Rx-treated) and 1403 had moderate/severe pain (781 Rx-untreated, 622 Rx-treated). Respondents with moderate/severe pain had significantly worse health-related quality of life (SF-12v2 physical component summary), health status (EQ-5D-5L), and both absenteeism and presenteeism compared with those with mild pain, including Rx-untreated (moderate/severe pain Rx-untreated vs. mild pain Rx-untreated, $p \leq 0.05$) and Rx-treated (moderate/severe pain Rx-treated vs. mild pain Rx-treated, $p \leq 0.05$) groups. Significantly more visits to healthcare providers in the last 6 months were reported for moderate/severe pain compared with mild pain for Rx-treated (least squares mean 13.01 vs. 10.93, $p = 0.012$) but not Rx-untreated (8.72 vs. 7.61, $p = 0.072$) groups. Health-related quality of life (SF-12v2 physical component summary) and health status (EQ-5D-5L), as well as absenteeism and presenteeism, were significantly worse, and healthcare utilization was significantly higher, in the moderate/severe pain Rx-treated group compared with all other groups (all $p \leq 0.05$).

Conclusion

Greater severity of CLBP was associated with worse health-related quality of life, health status, and absenteeism and presenteeism, irrespective of prescription medication use. Greater severity of CLBP was associated with increased healthcare utilization in prescription medication users.

Relationship between Vitamin D and Nonspecific Low Back Pain May Be Mediated by Inflammatory Markers: Retrospective Study.

De-Sheng Wu, MD, PhD, Shan-Jin Wang, MD, PhD, Tao Hu, MD, PhD, Yu-Yang Yi, MD, Hao Chen, MD, Shu-Bao Zhang, MD, and Hao-Wei Xu, MD.
Pain Physician 2021; 24:E1015-E1023.

Background

Vitamin D deficiency has been linked to nonspecific low back pain (Ns-LBP); however, the role of inflammation as a possible mediator between vitamin D levels and Ns-LBP is not well understood.

Objective

To explore the mediating effects of inflammatory markers on the relationship between vitamin D levels and pain outcomes.

Study Design

A retrospective study.

Setting

Department of Spinal Surgery of a hospital affiliated to a medical university.

Methods

In this cross-sectional study, we selected patients with non-specific acute low back pain (Ns-ALBP, n = 60) and non-specific chronic low back pain (Ns-CLBP, n = 78), as well as 60 people without Ns-LBP as controls, from January 2018 to January 2019. Serum 25(OH)D and inflammatory marker levels were examined. Regression and causal mediation analysis were used to evaluate the mediating effects of inflammatory markers on the association between vitamin D and pain.

Results

Mean serum concentrations of vitamin D in the control, Ns-ALBP, and Ns-CLBP groups were 25.70 ± 10.04, 21.44 ± 8.46 and 18.25 ± 8.05 ng/mL, respectively ($P < 0.001$). After adjustment for clinical factors, vitamin D deficiency was associated with Ns-LBP ($P < 0.05$); however, when the interleukin 6 (IL-6) level was added to the multivariable models, the association was no longer significant in Ns-CLBP patients. Mediation analysis estimated the overall mediated effect as -0.461 ($P < 0.001$) in Ns-CLBP patients, and the intermediary effect of IL-6 was 0.045.

Limitations

A retrospective study may include inevitable bias. More sensitive biomarkers were not investigated in this study. Pain intensity evaluation using the visual analogue scale is inevitably subjective.

Conclusion

Patients with Ns-LBP had lower vitamin D and higher inflammatory marker levels. This association between hypovitaminosis D and Ns-CLBP may be mediated by IL-6. Therefore, large-scale clinical trials are warranted to investigate the clinical efficacy of vitamin D supplementation for decreasing inflammation and relieving Ns-LBP.

The value of the whole picture: rehabilitation outcome measurement using patient self-report and clinician-based assessments after spinal cord injury.

Rebecca Eaton, Jane Duff, Martha Wallace, Kevin Jones
Spinal Cord 2022 Jan;60(1):71-80.

Abstract

Study Design

This is a retrospective longitudinal study.

Objectives

To explore the relative impact and contribution of using both the Spinal Cord Independence Measure III (SCIM) and Stoke Mandeville Spinal Needs Assessment Checklist (SMS-NAC) to assess rehabilitation outcome following an acute spinal cord injury (SCI).

Setting

The study was performed at National Spinal Injuries Centre (NSIC), Stoke Mandeville Hospital, Buckinghamshire Healthcare NHS Trust, Aylesbury, UK.

Methods

A patient self-report SMS-NAC and clinician-rated SCIM were administered on admission and discharge from the NSIC as part of standardised care. This paper presents a retrospective analysis of the rehabilitation outcomes of 195 people with spinal cord injury (PwSCI) following their first admission.

Results

In both measures, PwSCI improved from admission to discharge. Individuals with higher SCI obtained lower scores in both measures, at both admission and discharge. The SMS-NAC demonstrated the greatest increase in knowledge and skill for PwSCI who had higher and more complete injuries. On the SCIM, PwSCI who had lower and less complete injuries demonstrated the greatest increase in outcome.

Conclusions

Overall, both measures demonstrated responsiveness to change during SCI rehabilitation and enable clinicians to systematically determine areas to focus rehabilitation effort. The relative strengths and contribution to delivering person-centred care for each are identified. The SMS-NAC enables clinicians to record, for people with higher injuries, their subjective self-report of skill and knowledge gains from rehabilitation that may be missed with other measures. Consequently, using both is encouraged in appreciation of the value of recording verbal (instructional) independence as well as functional (physical) independence.

Effectiveness of Hematoma Aspiration and Platelet-rich Plasma Muscle Injections for the Treatment of Hamstring Strains in Athletes.

Trunz LM, Landy JE, Dodson CC, Cohen SB, Zoga AC, Roedl JB. Med Sci Sports Exerc. 2022 Jan 1;54(1):12-17.
Medicine & science in sports & exercise

Abstract

Introduction

The effect of platelet-rich plasma (PRP) treatment on recovery in acute hamstring injuries is controversial. Previous study results are inconsistent, and a standardized therapeutic approach has not been established yet.

Purpose

To assess the treatment effect using a combination of hematoma aspiration and muscle strain PRP injection in partial hamstring muscle tears (grade 2 strains) in athletes.

Methods

Magnetic resonance imaging of athletes with grade 2 hamstring strains were reviewed from 2013 to 2018. From 2013 to 2015, athletes were treated conservatively, and from 2016 to 2018, with a combination of ultrasound-guided hematoma aspiration and PRP muscle strain injection. The outcome, including return-to-play (in days) and recurrence rate, was compared retrospectively between both groups (conservative vs aspiration/PRP) using ANOVA and Fisher's exact test. There was no significant difference in age, type of sport, and muscle involvement (including injury grade/location, hamstring muscle type, and length/cross-sectional area of the strain).

Results

Fifty-five athletes (28 treated conservatively, 27 with hematoma aspiration/PRP injection) were included. Average return-to-play time (mean) was 32.4 d in the conservative group and 23.5 d in the aspiration/PRP group ($P < 0.001$). Recurrence rate of the hamstring strain was 28.6% (8/28) in the conservative treatment group and less than 4% (1/27) in the aspiration/PRP group ($P = 0.025$).

Conclusions

Athletes with grade 2 hamstring strains treated with a combination of hematoma aspiration and PRP injection had a significantly shorter return-to-play and a lower recurrence rate compared with athletes receiving conservative treatment.

American College of Sports Medicine position stand. Quantity and quality of exercise for developing and maintaining cardiorespiratory, musculoskeletal, and neuromotor fitness in apparently healthy adults: guidance for prescribing exercise.

Garber CE, Blissmer B, Deschenes MR, Franklin BA, Lamonte MJ, Lee IM, Nieman DC, Swain DP;
American College of Sports Medicine. Med Sci Sports Exerc. 2011 Jul;43(7):1334-59. Medicine & science in sports & exercise

Abstract

The purpose of this Position Stand is to provide guidance to professionals who counsel and prescribe individualized exercise to apparently healthy adults of all ages. These recommendations also may apply to adults with certain chronic diseases or disabilities, when appropriately evaluated and advised by a health professional. This document supersedes the 1998 American College of Sports Medicine (ACSM) Position Stand, "The Recommended Quantity and Quality of Exercise for Developing and Maintaining Cardiorespiratory and Muscular Fitness, and Flexibility in Healthy Adults." The scientific evidence demonstrating the beneficial effects of exercise is indisputable, and the benefits of exercise far outweigh the risks in most adults. A program of regular exercise that includes cardiorespiratory, resistance, flexibility, and neuromotor exercise training beyond activities of daily living to improve and maintain physical fitness and health is essential for most adults. The ACSM recommends that most adults engage in moderate-intensity cardiorespiratory exercise training for ≥30 min•d on ≥5 d wk for a total of ≥150 min wk, vigorous-intensity cardiorespiratory exercise training for ≥20 min•d on ≥3 d•wk (≥75 min•wk), or a combination of moderate- and vigorous-intensity exercise to achieve a total energy expenditure of ≥500-1000 MET•min•wk. On 2-3 d•wk, adults should also perform resistance exercises for each of the major muscle groups, and neuromotor exercise involving balance, agility, and coordination. Crucial to maintaining joint range of movement, completing a series of flexibility exercises for each the major muscle-tendon groups (a total of 60 s per exercise) on ≥2 d•wk is recommended. The exercise program should be modified according to an individual's habitual physical activity, physical function, health status, exercise responses, and stated goals. Adults who are unable or unwilling to meet the exercise targets outlined here still can benefit from engaging in amounts of exercise less than recommended. In addition to exercising regularly, there are health benefits in concurrently reducing total time engaged in sedentary pursuits and also by interspersing frequent, short bouts of standing and physical activity between periods of sedentary activity, even in physically active adults. Behaviorally based exercise interventions, the use of behavior change strategies, supervision by an experienced fitness instructor, and exercise that is pleasant and enjoyable can improve adoption and adherence to prescribed exercise programs. Educating adults about and screening for signs and symptoms of CHD and gradual progression of exercise intensity and volume may reduce the risks of exercise. Consultations with a medical professional and diagnostic exercise testing for CHD are useful when clinically indicated but are not recommended for universal screening to enhance the safety of exercise.

Prefabricated ankle-foot orthoses for children with cerebral palsy to overcome spastic drop-foot: does orthotic ankle stiffness matter?

Böhm H, Dussa CU.
Prosthet Orthot Int. 2021 Dec 1;45(6):491-499. Prosthetics and orthotics international

Abstract

Background

Spastic drop-foot is a common problem in children with cerebral palsy that may lead to tripping and falling. To improve ankle dorsiflexion in swing phase, prefabricated carbon-composite ankle-foot orthoses are commonly prescribed; by increasing ankle stiffness, these orthoses may also improve knee extension in stance.

Objectives

To compare the effect of a stiff vs. flexible prefabricated ankle-foot orthosis on sagittal plane ankle and knee kinematics and kinetics during walking.

Study Design

Cross-sectional, repeated-measures, interventional study.

Methods

Twenty-seven children and adolescents with cerebral palsy who had drop-foot in swing were included. Gait analysis was conducted under four conditions: barefoot, shod, with a stiff, and with a flexible orthosis. Participants were divided into two groups including children and adolescents who have a flexed knee during stance (KF, N = 12) and without flexed knee during stance (KE, N = 15).

Results

Ankle dorsiflexion in swing phase was significantly improved compared with the shod condition by 6.3 degrees (SD = 3.3 degrees) only in the KE group when using the flexible orthosis. For the stiff orthosis, knee extension in stance was significantly increased by 2.4 degrees (SD = 3.3 degrees) in the KE group compared with the shod condition. No significant improvements were observed for the KF group. Further analysis indicated that only seven patients in the KF group with weak ankle plantarflexors improved knee extension while using the stiff orthosis.

Conclusions

Our results suggested that in the KE group, the flexible orthosis was best suited for patients with drop-foot without a knee extension deficit. The stiff orthosis was not suitable in this group as it caused a hyperextended knee without improving dorsiflexion in swing phase. Therefore, stiffness should be considered when prefabricated orthoses are prescribed.

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CREATING POSSIBILITIES IN CEREBRAL PALSY

Abridged Prescribing Information (BACLOF)
Active Ingredient: each tablet of BACLOF contains: baclofen 10, 25 mg, BACLOF liquid contains baclofen 5mg/5ml, 100 ml bottle. **Indication:** treatment of spasticity resulting from multiple sclerosis, particularly for the relief of flexor spasms and concomitant pain, clonus, and muscular rigidity. **Dosage:** Tablets: Initiate with a low dosage, preferably in divided doses, administered orally. Increase gradually based on clinical response and tolerability. The maximum dosage is 80 mg daily (20 mg four times a day). When discontinuing, reduce the dosage slowly. Liquid: adults: One 5ml spoonful (5mg) 3 times a day for 3 days; Two 5ml spoonfuls (10mg) 3 times a day for 3 days; Three 5ml spoonfuls (15mg) 3 times a day for 3 days; Four 5ml spoonfuls (20mg) 3 times a day for 3 days. Elderly: Small doses should be used at the start of treatment, the dose being titrated gradually against the response, under careful supervision. Paediatric population (0 to <18 years): A dosage of 0.75-2mg/kg body weight should be used. In children over ten years of age, however a maximum daily dosage of 2.5mg/kg body weight may be given. Treatment is usually started with half a 5ml spoonful (2.5mg) given 4 times daily. The recommended daily dosages for maintenance therapy are as: 12 months – 2 years: Two to four 5ml spoonfuls (10-20mg), 2 years – 6 years: Four to six 5ml spoonfuls (20-30mg); 6 years – 10 years: Six to twelve 5ml spoonfuls (30-60mg). **Contraindications:** hypersensitivity to baclofen or any component of this product. **Warning and precautions:** Abrupt discontinuation of baclofen has resulted in serious adverse reactions including death; therefore, reduce the dosage slowly when baclofen is discontinued. Neonatal withdrawal symptoms can occur; gradually reduce the dosage and discontinue baclofen before delivery. Baclofen can cause drowsiness and sedation. Patients should avoid the operation of automobiles or other dangerous machinery until they know how the drug affects them. Advise patients that the central nervous system effects of baclofen may be additive to those of alcohol and other CNS depressants. Baclofen can cause exacerbation of the following: psychotic disorders, schizophrenia, or confusional states; autonomic dysreflexia; epilepsy. Use with caution in patients with these condition. **Pregnancy & Lactation:** Pregnancy: Based on animal data, may cause fetal harm. At recommended oral doses, baclofen is present in human milk. There are no human data on the effects of baclofen on milk production and on breastfed infant. **Interaction:** CNS depressants like benzodiazepines, antihistamine, antipsychotic, and alcohol etc., may cause increased sedative effects. Morphine (epidural) may cause hypotension and dyspnea. Laboratory Test Interactions may cause false elevation of AST (aspartate aminotransferase), alkaline phosphatase, or blood glucose. **Adverse reactions:** most common drowsiness, dizziness, and weakness. **Overdose:** Symptoms: Patients may present in coma or with progressive drowsiness, lightheadedness, dizziness, somnolence, accommodation disorders, respiratory depression, seizures, or hypotonia progressing to loss of consciousness. Treatment: includes gastric decontamination, maintaining an adequate airway and respirations. (Prepared on 23rd Feb 2020. It is recommended to refer full prescribing information before prescription. For further medical information, please write to: Intas Pharmaceuticals Ltd., Corporate House, Near Sola Bridge, SG highway, Thaltej, Ahmedabad-380054, Gujarat, India. productqueries@intaspharma.com.)

Abridged Prescribing Information (BACLOF LIQUID)
Active Ingredient: each tablet of BACLOF contains: baclofen 10, 25 mg, BACLOF liquid contains baclofen 5mg/5ml, 100 ml bottle. **Indication:** treatment of spasticity resulting from multiple sclerosis, particularly for the relief of flexor spasms and concomitant pain, clonus, and muscular rigidity. **Dosage:** Tablets: Initiate with a low dosage, preferably in divided doses, administered orally. Increase gradually based on clinical response and tolerability. The maximum dosage is 80 mg daily (20 mg four times a day). When discontinuing, reduce the dosage slowly. Liquid: adults: One 5ml spoonful (5mg) 3 times a day for 3 days; Two 5ml spoonfuls (10mg) 3 times a day for 3 days; Three 5ml spoonfuls (15mg) 3 times a day for 3 days; Four 5ml spoonfuls (20mg) 3 times a day for 3 days. Elderly: Small doses should be used at the start of treatment, the dose being titrated gradually against the response, under careful supervision. Paediatric population (0 to <18 years): A dosage of 0.75-2mg/kg body weight should be used. In children over ten years of age, however a maximum daily dosage of 2.5mg/kg body weight may be given. Treatment is usually started with half a 5ml spoonful (2.5mg) given 4 times daily. The recommended daily dosages for maintenance therapy are as: 12 months – 2 years: Two to four 5ml spoonfuls (10-20mg), 2 years – 6 years: Four to six 5ml spoonfuls (20-30mg); 6 years – 10 years: Six to twelve 5ml spoonfuls (30-60mg). **Contraindications:** hypersensitivity to baclofen or any component of this product. **Warning and precautions:** Abrupt discontinuation of baclofen has resulted in serious adverse reactions including death; therefore, reduce the dosage slowly when baclofen is discontinued. Neonatal withdrawal symptoms can occur; gradually reduce the dosage and discontinue baclofen before delivery. Baclofen can cause drowsiness and sedation. Patients should avoid the operation of automobiles or other dangerous machinery until they know how the drug affects them. Advise patients that the central nervous system effects of baclofen may be additive to those of alcohol and other CNS depressants. Baclofen can cause exacerbation of the following: psychotic disorders, schizophrenia, or confusional states; autonomic dysreflexia; epilepsy. Use with caution in patients with these condition. **Pregnancy & Lactation:** Pregnancy: Based on animal data, may cause fetal harm. At recommended oral doses, baclofen is present in human milk. There are no human data on the effects of baclofen on milk production and on breastfed infant. **Interaction:** CNS depressants like benzodiazepines, antihistamine, antipsychotic, and alcohol etc., may cause increased sedative effects. Morphine (epidural) may cause hypotension and dyspnea. Laboratory Test Interactions may cause false elevation of AST (aspartate aminotransferase), alkaline phosphatase, or blood glucose. **Adverse reactions:** most common drowsiness, dizziness, and weakness. **Overdose:** Symptoms: Patients may present in coma or with progressive drowsiness, lightheadedness, dizziness, somnolence, accommodation disorders, respiratory depression, seizures, or hypotonia progressing to loss of consciousness. Treatment: includes gastric decontamination, maintaining an adequate airway and respirations. (Prepared on 23rd Feb 2020. It is recommended to refer full prescribing information before prescription. For further medical information, please write to: Intas Pharmaceuticals Ltd., Corporate House, Near Sola Bridge, SG highway, Thaltej, Ahmedabad-380054, Gujarat, India. productqueries@intaspharma.com.)

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