IAPMR Guidelines

COMPLEX REGIONAL PAIN SYNDROME

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CRPS is a condition that causes multiple problems for both patients and treating physicians, due to large variety of available treatment options.

According to IASP(Internatinal Association for Society of Pain), the clinical criteria is the criteria for diagnosing CRPS, which is as follows:

1. Continuing pain, which is disproportionate to any inciting event.
2. At least one symptom in three of four categories:
   - Sensory: Hyperesthesia or allodynia
   - Vasomotor: Temperature asymmetry, skin color changes, or skin color asymmetry
   - Sudomotor/Edema: Edema, sweating changes, sweating asymmetry
   - Motor/Trophic: Decreased range of motion, motor dysfunction (weakness, tremor, dystonia), or trophic changes (hair, nail, skin)
3. At least one sign at the time of evaluation in two or more categories:
   - Sensory: Hyperalgesis (to pinprick) or allodynia (to light touch, deep somatic pressure or joint movement)
   - Vasomotor: Temperature asymmetry, skin color changes, skin color asymmetry
   - Sudmotor/Edema: Edema, sweating changes or sweating asymmetry
   - Motor/Trophic: Decreased range of motion, motor dysfunction (weakness, tremor, dystonia), or trophic changes (hair, nail, skin)
4. There is no other diagnosis that better explains the signs and symptoms

Causes of CRPS

Trauma (crush injury, fracture, post surgery, sprained ankle)

Infections

Surgical or medical procedures like needle stick injuries

Stroke

Traumatic brain injury

Nerve injuries

Diagnosis:

1.Plain Radiographs: Useful in late stages with findings only with atrophic stage showing bone loss and patchy osteoporosis

2.Three Phase Bone Scintigraphy : It is useful only in acute stage which shows hyperperfusion

It is suggestive and supportive of the diagnosis of CRPS, but not diagnostic

3.Thermography: It might be useful tool as it shows asymmetry. The affected limb is warmer than normal in acute stage and later becomes cooler. But it is not a readily available procedure

4.Sympathetic Blocks : Stellate Ganglion Block for Upper limb CRPS and Lumbar Sympathetic

Block for lower limb CRPS: A successful block that results in pain relief helps confirm a

diagnosis of CRPS in the presence of other consistent clinical findings.

5. Quantitative Sensory Testing: Rarely available and no specific profile for CRPS

6.QSART(Quantitative Sudomotor Axon Reflex Test) of autonomic function: Rarely available

Management of CRPS:

The aim of Management of CRPS is to alleviate Pain and to restore function.This can be achieved by four cornerstone of treatment:

- Pharmacological
- Interventions
- Physical Therapy - to restore functions
- Psychological Interventions – CBT

Pharmacological Management:

Many studies were done for showing the efficacy of treatment by Paracetamol, NSAIDs, Opioids, capsaicin, oral muscle relaxants calcium channel blockers; but all the studies suggest insufficient benefit by the same.

There is some evidence that corticosteroid have benefit in decreasing pain and inflammation but there are no guideline on dosage and duration of the treatment.

Bisphophonates : helps in decreasing inflammation signs but no guidelines on doses and duration of treatment.

Anti epileptics:Studies have been done with gabapentin at the dose of 600-1800 mg / day; it was found that it helps in decreasing pain, but not sensory signs.

TCA(Tricyclic Antidepressants): Literature on Tri cyclic Antidepressantssuggest no role of these drugs.

Interventional management

Sympathetic blocks have a role in decreasing pain and inflammation

IV Ketamine – 2-3 mg/kg infusion over half an hour

Repeated TransmagneticStimulation, when applied to contralateral motor cortex, alleviates pain in CRPS . It acts as NMDA receptor antagonist and thus helps in Central Desensitisation.

Mirror Therapy : The brain wants congruence between motor intention, peripheral sensory input and visual input. Mirror therapy "restores" this relationship. Studies suggest that Mirror therapy helps in decreasing the pain.

Spinal Cord stimulation administered to CRPS patients who are carefully selected and undergo successful trial stimulation causes long term pain reduction and improves quality of life but does not improve function.

Physical Modalities and Therapy:

Studies have been done on Laser with good reduction in pain ;studies with TENS suggest not so positive response.

Studies done on Physical Therapy alone have limited evidence for reduction in signs and symptoms, but it remains the backbone of the management.

Psychological Therapy

Because of chronic pain and dysfunction , patients of CRPS are frustrated and depressed therefore logically, Psychological counselling in the form of Cognitive Behavioral Therapy should be helpful but unfortunately literature suggest to have a limited role.

Clinical Practice:

All the studies done show limited evidence as they were done independent. Management of CRPS is multidisciplinary with multimodal approach. For a physiatrist, once after diagnosis, a trial of conservative management can be started consisting of Pharmacological, physical modalities and physical therapy

A trial of NSAID can be given starting with indomethacin 25mg tds, with pulsed steroid i.e Methylprednisolone 24mg in divided doses and tapered within 3 weeks .

For neuropathic pain, Gabapentin can be given in divided doses starting from 100 mg tds and increase to 900 mg. Tab Amitriptyline 10 mg, increased to 25mg or Nortryptiline 25 mg can also be given in low dose for the same.

Physical modality with wax therapy of involved distal extremity, laser at proximal extremity(e.g wax at hand and wrist and laser at shoulder in involvement of upper extremity and same for lower extremity), along with exercises of the involved extremity within the pain limit can be started simultaneously.

Mirror therapy can be started simultaneously for reduction of pain by occupational therapist along with exercises for functional activities.

If there is significant (50% or more) reduction in pain and inflammation , can continue Indomethacin as sustained release and stop steroid.Physical therapy has to be continued till further reduction of signs and symptoms.

If there is insignificant reduction in pain and inflammation then we should intervene by minimally invasive interventions. Sympathetic blocks are most common . If there is facility of ultrasound , should go for **USG guided sympathetic block** with a mixture of Lignocaine 2% 4-5 ml with Methyl prednisolone 80 mg injected around the stellate ganglion for upperlimb and lumbar sympathetic chain for lower limb CRPS. If there is significant relief in pain and edema, which can be seen immediately , continue with physical modality and physical therapy.

Repeat block can be given if the effect weans off .The block can be repeated after one week with Depot methyl prednisolone 40 mg. If the reduction in pain in subsequent blocks is not significant, consider changing the approach.

A trial **of IV Ketamine** 2-3mg/kg can be given iv over 45 to one hour. It is not used in patients with deranged RFT.Continous Blood pressure monitoring is required for the same. Be cautious about dissociative anaesthesia.

If the results are not satisfactory, one should go for more invasive procedures like **spinal cord stimulation**

Algorithm of Management of CRPS