TOWARDS THE DEVELOPMENT OF DIAGNOSTIC CRITERIA AND TREATMENT OF COMPLEX REGIONAL PAIN SYNDROME

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Summary / Conclusions.

- We propose to adopt the Complex Regional Pain Syndrome diagnostic criteria as outlined by Bruehl, Harden, Galer and Salts. It is expected that the adopted diagnostic criteria of Complex Regional Pain Syndrome will be able to 'accurately' diagnose ± 80% of potential Complex Regional Pain Syndrome patients.
- The probability of a patient developing Complex Regional Pain Syndrome can be reduced by early mobilization/activation following injury or surgery. Thus, therapy for Complex Regional Pain Syndrome should be directed toward the goals of physical restoration and pain control. It is crucial that pain control interventions be linked closely with physical/occupational therapy.
- Opiates are not recommended as first line treatment in Complex Regional Pain Syndrome patients. Opiates should only be considered when non-opiates are unable to adequately control pain.
- To this date there is insufficient evidence on the effectiveness of Spinal Cord Stimulation in treating Complex Regional Pain Syndrome patients.
- Up to three sympathetic blocks may be authorized to allow the attending physician to determine whether the patient has sympathetically mediated pain. Additional blocks should be undertaken ONLY if there is evidence from the first three that the patient has sympathetically mediated pain.
- A one time psychological/psychiatric consultation may be requested to assist in the evaluation of such patients.
- Hospitalization is rarely appropriate in the treatment of Complex Regional Pain Syndrome.

Background.

- The WCB of BC spends almost $ 200 million, annually, on health care benefits (Figure 1 and Figure 2).

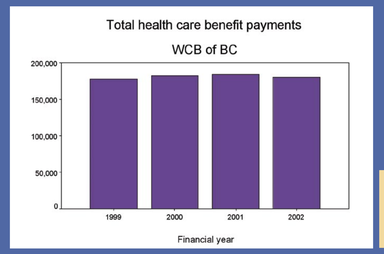

Figure 1. Total annual health care benefit costs at the WCB of BC

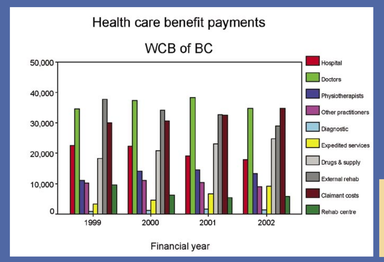

Figure 2. Description of annual health care benefit costs at the WCB of BC.

- There were an increasing pain clinic referrals from medical advisors at the WCB of BC in the recent years
- CRPS can be very disabling
- The diagnostic criteria, pathophysiology and effective treatment of patients with CRPS is still unclear.

Objectives.

- To initiate a discussion with providers who assess and treat patients with CRPS
- To develop reasonable and practical science based clinical criteria for the diagnosis and treatment of CRPS
- To develop specific policies with regard to acceptable diagnosis and treatment of patients with CRPS within the WCB of BC.

Methods.

1. A literature search (including grey literature) was undertaken by the Evidence-Based Practice Group (EBPG) using a standard systematic review process.
   - Algodystrophy, Sudeck's atrophy, post-traumatic vasomotor syndrome, reflex sympathetic dystrophy, causalgia and complex regional pain syndrome together with diagnosis or treatment were used as keywords.
   - The search was done up to September 30, 2002 and limited to human subjects and English language.
2. The document was developed in 2 stages.
   - The first involved diagnostic criteria and the second one reviewed treatment options.
   - At each stage, the draft document was distributed among 128 practitioners (community based physicians) including pain specialists, to seek their input and comments.
   - The input received from these practitioners was then discussed by the EBPG and incorporated into the final document.
   - At the time being, the EBPG is compiling comments on the treatment option portion of the paper.
   - Because of the nature of the literature and the methodology we employed to develop these in-house documents, the 'quality' of these papers would never be graded higher than level 4 ([29] Canadian Task Force on the Periodic Health Examination: The periodic health examination). Despite this, the papers have and will continue to allow for a more consistent approach to the assessment and management of such patients.

Results.

Proposed diagnostic criteria for Complex Regional Pain Syndrome.

- Complex Regional Pain Syndrome (CRPS) was previously known as algodystrophy, Sudeck's atrophy, post-traumatic vasomotor syndrome, reflex sympathetic dystrophy or causalgia.
- The incidence of CRPS varies from an estimated 0.05% to 35% depending on the population studied.
- It is estimated that 20% - 35% of these cases will remain incapacitated, despite treatment.
- It is estimated that only 20% - 30% will return to their previous occupation
- In 1993, the International Association for the Study of Pain proposed a standardized terminology for this condition. Reflex sympathetic dystrophy was then termed CRPS type I and causalgia as CRPS type II.
- The difference between CRPS type I and type II is that, by definition, type II occurs following a known peripheral nerve injury with damage to nerve function. Type I occurs in the absence of any known nerve injury.
- The proposed diagnostic criteria are presented in Table 1.
- By employing four symptoms and two or more signs we expect to be able to 'accurately' diagnosed ± 80% of potential CRPS patients[7,22].

Table 1. CRPS: Proposed Diagnostic Criteria [adapted from 7,22].

1. Continuing pain, which is disproportionate to any inciting events

2. Report of at least one **symptom** in each of the four following categories:
   Sensory: reports of hyperesthesia
   Vasomotor: reports of temperature asymmetry and/or skin colour changes and/or skin colour asymmetry
   Sudomotor/edema: reports of edema (with or without joint stiffness) and/or sweating changes and/or sweating asymmetry
   Motor/trophic: reports of decreased range of motion and/or motor dysfunction (weakness, tremor, dystonia) and/or trophic changes (nails, hair, skin)

3. At least one **sign** in two or more of the following categories:
   Sensory: evidence of hyperalgesia (to pinprick) or allodynia (to light touch)
   Vasomotor: evidence of temperature asymmetry and/or skin color changes and/or asymmetry
   Sudomotor/edema: objective evidence of edema (with or without joint stiffness) and/or sweating changes and/or sweating asymmetry
   Motor/trophic: evidence of decreased range of motion (including joint stiffness) and/or motor dysfunction and/or trophic changes

Sympathetic blockade in the diagnosis of CRPS.

- Sympathetic block is not considered to be a definitive diagnostic test for CRPS
- The purpose of sympathetic blockade in CRPS is to guide treatment by indicating whether the pain is sympathetically mediated or not.

Overview of treatment.

- The proposed treatment guidelines and the protocol for physical or occupational therapy are summarized in Table 2 and Table 3, respectively.
- Early mobilization/activation following injury or surgery is the guiding principle in preventing the development of CRPS.
- The goals of CRPS treatment are physical restoration and pain control.
- Pain control given to CRPS patient should be potent enough to break the pain cycle so that CRPS patient can participate actively in progressive physical restoration program.
- The guiding principles in the physical restoration program are:
  - Complete commitment from the patient
  - Must be individualized by the attending physician(s)
  - Directly supervised by a physiotherapist or occupational therapist
- The guiding principles in pain control are:
  - To provide enough pain relief to allow participation in an appropriate activation program
  - When sympathetic blocks are given, active physical/occupational therapy should be scheduled within 24 hours of the procedure
  - Clinicians may use a variety of medications to control pain, including NSAIDS, corticosteroids, calcitonin, -adrenergic blockers, antiseizure medications, mexiletine, opiates, capsaicin and sympathetic nerve blocks
  - Opiates are not recommended as the first line treatment for patients with CRPS
  - To this date there is no evidence on the effectiveness of Spinal Cord Stimulation in treating CRPS
- The guiding principles around sympathetic blocks include:
  - Up-to 3 sympathetic blocks maybe authorized in order to establish the diagnosis that the pain in the CRPS's patient is sympathetically maintained
  - Additional blocks can be authorized given a proven diagnosis that the pain is sympathetically maintained
  - The evidence that nerve block has been 'successful' needs to be documented by the physician and the patient in a standardized manner
  - Physiotherapy/Occupational therapy has to be scheduled immediately following the application of nerve blocks
- Sympathetic block as a treatment modality:
  - Sympathetic blocks may be given together with other treatment modalities to control pain
  - Treatment is divided into six-week phases with a maximum of three phases.
  - The second or the third phase will be authorized if the first or the second phase shows evidence of functional improvement
  - Up to five blocks maybe authorized in the first six weeks
  - Up to three blocks maybe authorized in the second six weeks
  - Up to three blocks maybe authorized in the third six week phase
- Psychological assessment:
  - A one time psychological/psychiatric consultation maybe requested to assist in the evaluation of CRPS patients
- Hospitalization is rarely appropriate in the treatment of CRPS except when there are associated surgical (usually orthopaedic) condition on the same limb that needs operation. In this case CRPS patient is at high risk for post-operative exacerbation of their CRPS

Table 2. CRPS: Proposed Treatment Guidelines [adapted from 2,5].

1. **Conservative care:**
   The goal of the treatment is physical restoration and pain control
   Early, aggressive care is encouraged.
   Emphasis should be on improved functioning of the symptomatic limb.

2. **First 6 weeks of care:**
   Physical/occupational therapy should be focused on increasing functional level.
   Sympathetic or somatic blocks, maximum of **five.** Each block should be followed by physical/occupational therapy.
   Other medications is at MD's discretion as long as it promotes improved function.

3. **After the 1st six weeks of care:**
   Strongly consider psychiatric or psychological consultation if disability has extended beyond 3 months.
   Continued physical/occupational therapy based on documented progress toward goals established during the first 6 weeks (Item 2 above)
   Sympathetic or somatic blocks only if response to previous blocks has been positive, maximum of 3 every six weeks for a maximum of 12 weeks (a maximum of 11 blocks can be delivered over the total 18 week period).

4. **Sympathectomy is not the treatment of choice for CRPS :**
   Sympathectomy should only be contemplated in highly unusual and extraordinary cases.

Table 3. CRPS: Protocol for Physical/Occupational Therapy [adapted from 2,5].

1. **Evaluation should:**
   Include a date of onset of original injury (to determine disease stage) and a date of onset of CRPS symptoms.
   Establish a baseline for strength and range of motion.
   Establish a baseline for weight bearing for lower extremity.
   If lower extremity, evaluate distance able to walk and need for assistive device(s).
   If upper extremity, establish a baseline for grip and pinch strength and shoulder range of motion.
   If possible, measure edema in a reproducible manner
   Define functional limitations.

2. **Set specific functional goals for treatment related to affected extremity.**

3. **All treatment programs should include a core of:**
   A progressive active exercise program, including a monitored home exercise program.
   Progressive weight bearing for the lower extrimity (if involved).
   Progressive improvement of grip strength, pinch strength and shoulder range of motion of the upper extremity (if involved).
   A desensitization program.

4. **For specific cases, additional treatment options may be indicated to enhance the effectiveness of the above core elements. Documentation should reflect reasons for these additional treatment options.**

5. **Documentation should include:**
   At least every two weeks, assessment of progress towards goals.
   Response to treatment used in addition to core elements (item no.3 above).
   Evidence of motivation and participation in home exercise program such as using a diary or quota system.

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