



Usual Physical Therapy Management of Patients with Complex Regional Pain Syndrome: A Pilot Study

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INTRODUCTION

Patients with Complex Regional Pain Syndrome (CRPS) have a multifaceted syndrome which manifests as pain, allodynia, hyperalgesia, abnormal vasomotor activity, edema, movement dysfunctions, dystrophy, atrophy, and abnormal sudomotor activity.¹

CRPS is categorized into types:

•Type 1 has vasomotor signs and symptoms, formerly noted as Reflex Sympathetic Dystrophy.

•Type 2 has neurological signs and symptoms, formerly called Causalgia.

•Type 3 is a combination of vasomotor and neurological signs and symptoms.

Onset: Secondary to direct trauma or caused by indirect trauma such as a Myocardial Infarct or Spinal Cord Injury

Symptoms:

- Exaggerated burning sensation
- Pain begins locally
- Pain spreads to regional distribution
- Pain is more intense than expected
- Pain is inconsistent with mechanism of injury

Physical Therapy is a "cornerstone" in the treatment of patients with CRPS Type 1 and an estimated 90% of pain specialists refer their patients to physical therapists.² No consensus between physical therapists exists for best treatment even though therapeutic guidelines³ are available. Interventions are many and varied and fall loosely into categories of movement, modalities, desensitization and biofeedback. Most interventions are combinations of all categories.⁴

HYPOTHESIS AND PURPOSE

Hypothesis: Trends of treatment would be consistent between physical therapists regardless of years of practice, geographical location and specialty certifications.

Purpose: To determine usual interventions selected by physical therapists in the management of CRPS.

METHODS

Members of the Orthopedic Section of the APTA who practice within Medicare Region B (Figure 1) were surveyed. A total of 1,498 subjects were randomly selected from 2,822 members. Approval by the University of Michigan – Flint Internal Review Board was received prior to initiation of the study. In order to complete the survey, subjects must have treated at least one patient with CRPS.

An initial postcard included an invitation to complete the survey online using Zoomerang™. Two weeks later, a second postcard including the same information was sent as a reminder. Letter of intent and informed consent documents were located on the initial webpage of the URL. Willingness to participate and informed consent were confirmed electronically once each subject clicked on the survey link.

The 24 question survey instrument was composed primarily of closed-ended and scalar questions. In order to assess for ease of use, time to complete and general layout, the survey was piloted by four clinical faculty members at the University of Michigan – Flint Physical Therapy Department, as well as two physical therapists at the university's Urban Health and Wellness Center.



Figure 1: Medicare Region B States

ics, number of patients with CRPS treated, andapist were included in the survey. Subjects had to ng to the subsequent question. A branching ns did not apply based on previous responses.

Once electronic surveys were completed, responses were sorted using Zoomerang™. Although a 20% response rate was anticipated, only 42 of 1498 (3%) respondents completed the survey. From the cross tabulations, the Kendall tau-b and Pearson chi square were used to analyze nominal and ordinal data, respectively. The determination of significance was 0.05. Descriptive statistics were used to determine common interventions for the treatment.

RESULTS

The characteristics of respondents are described in Table 1.

•Physical therapists surveyed tend to use movement interventions over modality and desensitization interventions. Figure 2 lists the commonly used and rarely used interventions.

•Patients with CRPS receive interventions two to three times per week for greater than 12 weeks.

•84% of physical therapists surveyed reported that the majority of their patients with CRPS concurrently receive other treatments from pain management specialists.

•60% use movement techniques including joint mobility, active and passive range of motion (AROM/PROM), resistive exercise (RE) and aerobic exercise (AE) the majority of the time.

•75% of respondents reported using transcutaneous electrical stimulation (TENS) and 44% reported using Interferential current (IFC) more than half of the time.

Characteristic	Responses	Number (%)
State of current practice	Michigan	13/42 (31)
	Wisconsin	11/42 (26)
	Minnesota	5/42 (12)
	Illinois	4/42 (10)
	Ohio	4/42 (10)
	Indiana	3/42 (7)
	Kentucky	3/42 (7)
Highest degree earned	Bachelor Degree	11/42 (26)
	Master of Physical Therapy	16/42 (38)
	Doctor of Physical Therapy	4/42 (10)
	Transitional DPT	4/42 (10)
	PhD	1/42 (2)
	Other	6/42 (14)
Years of experience	0-5 years	6/42 (14)
	6-10 years	8/42 (19)
	11-15 years	3/42 (7)
	16-20 years	8/42 (19)
	> 20 years	17/42 (40)
Community of current practice	Urban (within city limits)	22/42 (52)
	Suburban (< 30 miles from city limits)	16/42 (38)
	Rural (> 30 miles from city limits)	4/42 (14)
Gender	Female	25/42 (60)
	Male	17/42 (40)

Table 1. Demographic Characteristics

DISCUSSION

In 2005, Smith conducted a systematic review to examine the effectiveness of physical therapy interventions for patients with CRPS. The results suggested that exercise, mirror feedback, motor imaging, relaxation techniques, acupuncture, electroacupuncture, and combined treatment programs may alleviate signs and symptoms.⁴ Oerlemans et al in 2003 surveyed physiotherapists from the Netherlands to determine the most commonly used interventions. Exercise, patient education, TENS and massage were reported as being the interventions of choice.⁵

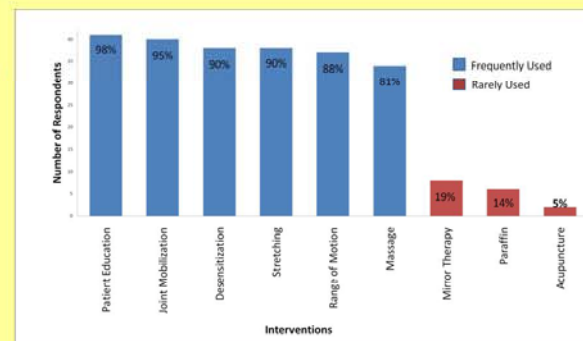


Figure 2: Commonly and Rarely Used Interventions

Massage, patient education and exercise were common interventions reported by USA physical therapists in this study. When comparing the 2002 guidelines by Stanton-Hicks³ and current research, the physical therapists surveyed did not appear to be maximizing current best practice for the treatment of patients with CRPS.

Eleven of the sixteen interventions listed in the guidelines are not being used by physical therapists in Medicare Region B. Some of the interventions not utilized include: electrical stimulation, aerobic conditioning, stress loading, strengthening and postural normalization. Although patient education is not part of the current guidelines, a significant percentage of physical therapists spent time educating patients.

Six of the forty-two respondents report using mirror therapy. This indicates that some physical therapists are incorporating current evidence into practice. Mirror therapy was not included in the 2002 CRPS guidelines because it emerged approximately two years later, first reported by Moseley et al. in 2004.⁶

Limitations:

- Small sample size
- Unable to use an email address list to obtain access to survey sample
- Limited only to APTA Orthopedic section members practicing in Medicare Region B.
- Participants required internet access
- The survey instrument was created for the purpose of this study only; therefore the reliability and validity are unknown.

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