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Risk perception of developing complex regional pain syndrome I

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This study investigated how members of a hand team perceive clinical signs after a fracture of the distal radius. The risk of developing complex regional pain syndrome I (CRPS-I) was assessed on a 100-mm straight line based on clinical signs 5 weeks, 7 weeks and 10 weeks after the accident. Members of the hand team perceived clinical signs significantly differently.

Introduction

Complex regional pain syndrome type I (CRPS-I) is diagnosed on the basis of clinical symptoms, although no uniformly defined criteria and diagnostic tests exist.^{1–4} Diagnosis of CRPS-I in post-traumatic patients may be delayed because there is a resemblance between the normal post-traumatic state of an extremity and the state when affected by CRPS-I.⁵ In our department, different members of the rehabilitation hand team, a physician specialized in physical and rehabilitation medicine, an occupational therapist and a physical therapist, treat patients after trauma of hand and wrist mostly at a very early stage.

The aim of this study was to investigate how clinical signs of patients with a fracture of the distal radius are perceived by a physician, an occupational therapist and a physical therapist.

Patients and methods

All patients who visited the emergency unit of our hospital because of a fracture of the distal radius over the period of one year were invited to participate in this study. Excluded were patients younger than 10 years and patients with bilateral fractures of the distal radius. An occupational therapist, a physical therapist and a physician (specializing in physical and rehabilitation medicine) assessed the patients at five weeks after the accident, when the cast was definitively removed, two weeks later (seven weeks) and 10 weeks after the accident. At follow up the principal researcher searched the outpatient department for a physician, an occupational therapist and a physical therapist available for the assessment. The team members were asked to assess, independent of each other, the risk of developing CRPS-I on a 100-mm straight line (0 = the patient will not develop CRPS-I; 100 = the patient will certainly develop CRPS-I). The assessments were based on the physical appearance of the wrist and hand. The team members were selected on the basis of availability at that moment. Due to changing professional activities

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Table 1 Mean scores of risk assessment of the different team members at 5 weeks, 7 weeks and 10 weeks after fracture of the distal radius

	Physician	PT	OT	Physician/PT	Physician/OT	PT/OT
	Mean (SD)	Mean (SD)	Mean (SD)	Mean difference (SD)	Mean difference (SD)	Mean difference (SD)
5W	3.5 (6.2)	8.7 (7.7)	23.9 (18.1)	5.2 (8.8) $p = 0.003$	20.4 (17.7) $p = 0.003$	15.2 (19.3) $p = 0.003$
7W	3.0 (6.2)	6.8 (7.5)	13.5 (13.5)	3.8 (8.0) $p = 0.012$	10.5 (13.0) $p = 0.003$	6.7 (12.4) $p = 0.006$
10W	1.1 (1.8)	4.8 (6.8)	9.5 (15.8)	3.7 (7.3) $p = 0.081$	8.4 (16.0) $p = 0.066$	4.7 (18.2) $p = 0.723$

PT, physical therapist; OT, occupational therapist; physician, physician specialized in physical and rehabilitation medicine. 5W, 7W and 10W: 5 weeks, 7 weeks and 10 weeks after fracture of the distal radius.
Results of paired t -test, Bonferroni-corrected.

of the different team members, the physician, occupational therapist and physical therapist differed for the different patients.

Results

In total 88 patients were included. One female patient, age 69 years, developed a CRPS-I on the nondominant side. The fracture was treated conservatively. The mean age of the 87 patients was 47.5 years (SD = 19.4); 58 (67%) were female. The dominant side was affected in 36 patients (41%), and 82 (94%) patients were treated conservatively.

The VAS scores for the CRPS-I patient given by the physical therapist, occupational therapist and physician were respectively at five weeks 65, 59 and 20; at seven weeks: 38, 76 and 93; at 10 weeks: not available. For the other patients the mean, standard deviations, as well as the mean differences between the three team members in assessing the risks for the patients developing CRPS-I are summarized in Table 1.

Discussion

Members of the hand team perceive physical signs of patients after fracture of the distal radius fracture significantly differently. In time this difference reduces. The perception of physical signs was assessed at five weeks, seven weeks and 10 weeks because normally CRPS-I cannot be confirmed within 6–10 weeks after trauma because at that stage symptoms may no longer be attributed to the injury.^{5,6} In an attempt to update and standardize terminology and criteria for different pain syndromes a revised taxonomic system for CRPS-I has been published.⁷ However, if researchers and physicians still do not agree upon interpretation of clinical signs one can hardly expect agreement in risk perception between different professionals who are not trained in making a specific diagnosis.^{8–10}

The occupational therapists perceived the risk the highest, maybe due to the fact that they are

unfamiliar with CRPS-I and/or wrist fractures in the acute phase. They usually see the patients at a later stage than physicians.⁹ This same is probably true for the physical therapist, but the physical therapist seems to have a perception of risk closer to that of the physician. Similar investigations into the interpretation of clinical signs by different professionals within a team may be of interest in other patient groups.

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