Complex Regional Pain Syndrome Type 1 after Fractures of the Distal Radius: A Prospective Study of the Role of Psychological Factors

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What is This?
A prospective study was designed to investigate the question “Do patients who develop Complex Regional Pain Syndrome Type 1 (CRPS Type 1) after fracture of the distal radius display different psychological behaviour patterns and/or are more depressive than those who recover uneventfully after this fracture?” Sixty-two patients of mean age 56 years with displaced distal radius fractures were operated on by closed reduction and percutaneous fixation with K-wires. All these patients were examined psychologically on the day after the operation. A series of standardized, self-administered questionnaires was used to assess personality and depression. Fifty of the 62 patients were reassessed at 2 months for symptoms and signs of CRPS Type 1 and a diagnosis of this condition made on clinical grounds. Nine patients (18%) were diagnosed as having CRPS Type 1. There were no significant differences in scores on any of the personality and depression scales between CRPS Type 1 and non-CRPS Type 1 patients. Therefore, patients who eventually developed CRPS Type 1 after radial forearm fracture had neither a unique psychological pattern nor displayed more symptoms of depression than those who recovered uneventfully.

Keywords: CRPS aetiology, CRPS psychological factors, distal radius fractures complications

INTRODUCTION

Complex Regional Pain Syndrome Type 1 (CRPS Type 1) (formerly called Reflex Sympathetic Dystrophy and Algodystrophy) is a descriptive term for a complex of symptoms and signs which includes pain, swelling, tenderness and regional vasomotor instability which are accompanied by significant functional impairment of the hand or the entire limb. CRPS Type 1 may develop after a variety of incidents, but, most frequently, after trauma or surgery and is characterized by the persistence of these symptoms and signs beyond the bounds of normal healing of the precipitating injury. The severity of pain and disability in CRPS Type 1 exceeds the expected clinical course of the inciting event in both magnitude and duration (Merskey and Bogduk, 1994).

Little is known about the factors which predispose to CRPS Type 1 (Zyluk, 2004). It has been hypothesized that CRPS may be a condition of psychogenic origin, may be psychologically mediated and/or that psychological/psychiatric disturbances can be facilitating factors (Pawl, 2000; Van Houdenhove et al., 1992). Some findings in the literature support this view. The fact that symptom severity and duration are out of proportion to the relatively innocuous, inciting injury is said to support this view (Merskey and Bogduk, 1994). Significant numbers of psychiatric disorders and personality abnormalities were diagnosed in patients with CRPS Type 1 in other studies (Bruehl and Carlson, 1992; Monti et al., 1998; Pollack et al., 1980). Evidence of beneficial effects from psychological support in the treatment of CRPS Type 1 is regarded as indirect evidence of a psychogenic factor in the origin of the condition (Poplawski et al., 1983; Rauis, 1999). A high incidence of positive placebo responders is reported in controlled studies on the effectiveness of treatments of CRPS Type 1 (Bickerstaff and Kanis, 1991; Verdugo and Ochoa, 1991). Geertzen et al. (1998) found traumatic social and life events, or other psychological problems, to be present in 60% of CRPS Type 1 patients at the time of injury. A disparity was reported between high level of perceived disability and small objective impairments measured in long-term follow-up in CRPS Type 1 patients who eventually recovered (Geertzen et al., 1998).

Several articles provide evidence that people with a specific “psychological instability” personality pattern are predisposed to develop CRPS Type 1 after trauma or operation. This personality make-up was characterized by Pollack et al. (1980) as emotional unbalance, anxiety, decreased confidence with tendency to depression and somatization. Others describe people susceptible to CRPS Type 1 as having decreased ego strength, high rigidity of intellectual control, a shallow emotional life, in general, and lack of expression of affect (Lynch, 1992; Poplawski et al., 1983).

Other opinions question the empirical support for a psychogenesis of CRPS Type 1. Some authors have suggested that the psychological changes may by a result of chronic pain and disability, rather than predisposing personality traits, and that patients with CRPS Type 1 are not psychologically different from those who suffer from other forms of chronic pain (de Good et al., 1993; Haddox et al., 1988; Monti et al., 1998) and advocate
that the results of psychological examination might have been biased by chronic pain and disability being experienced by CRPS Type 1 patients. De Good et al. (1993), who compared the psychological patterns of CRPS Type 1 patients to other chronic pain sufferers, did not find evidence that CRPS Type 1 patients were particularly disturbed psychologically. Ciccone et al. (1997), by demonstrating a similarity between CRPS Type 1 patients and those with chronic low back pain and local neuropathy, raised further doubt about the supposed psychological origins of CRPS Type 1. Field and Gardner (1997) found that patients who developed CRPS Type 1 after fracture of the distal radius had not displayed increased psychological distress before onset of the condition. Lynch (1992) in a review of the psychological literature relating to CRPS Type 1 showed serious methodological defects in many studies, with poorly defined diagnostic criteria of CRPS Type 1, lack of control groups, retrospective investigations and use of unstandardized psychological tests. Lynch concluded that there was no valid evidence in the literature to substantiate claims that certain personality traits predispose to developing CRPS Type 1.

Neither opinion presented above has ever been investigated in a prospective controlled trail, so neither can be entirely dismissed. An accurate study for assessment of the role of psychological factors in development of CRPS Type 1 has to meet the following criteria: (1) psychological examination should be performed after trauma but before onset of the condition using a series of standardized, reproducible measures which assess personality characteristics and depression. (2) An adequate number of patients should be involved to obtain the subgroups appropriate to statistical analysis. Having this in mind, we designed a prospective study to answer the question “Do patients who develop CRPS Type 1 after fracture of the distal radius display a different psychological pattern and/or are more depressive from those who recover uneventfully after this fracture?”

PATIENTS AND METHODS

Since we intended to examine patients before the onset of CRPS Type 1, we chose a type of injury in which the incidence of CRPS Type 1 is relatively high and, therefore, the condition might be expected to occur in a substantial proportion of the patients. The incidence of CRPS Type 1 after fracture of the distal radius, investigated in prospective studies, ranges from 10 to 37% (Veldman, 1995). Therefore, we based our study group on patients with this injury.

Over the period February 2002 to October 2003, a total of 121 patients with displaced fractures of the distal radius were operated on by closed reduction under brachial block anaesthesia and percutaneous fixation with K-wires, followed by 3 weeks in below elbow cast. Fifty-nine of 121 patients refused permission for psychological examination. Sixty-two patients were initially recruited and each was psychologically assessed the day after the operation, using a series of four standardized, self-administered questionnaires (see below) to assess personality characteristics, presence and level of depression which are amenable to statistical examination. These four tests were selected as the most appropriate for the purposes of this study on the advice of a psychologist. A co-opted psychologist from the Professorial Department of Psychology, University of Szczecin, interpreted the results of all of the psychological tests. All of the examinations were performed by the first author.

The EPQ-R questionnaire is a standardized test designed according to the theory that the traits of Neuroticism, Extrav-Introversion, Psychoticism and Falsehood are the most important components of personality. The test consists of 100 questions. The primary point-score obtained after completion of the questionnaire is then converted into a sten-score using a special key chart, matching the primary point-score with sex and age. Finally, personality is characterized by one sten-score in each of four subscales: Neuroticism, Extraversion, Psychoticism and Falsehood. On the Neuroticism subscale, an individual scoring 1 to 4 stens is regarded as normal (emotionally balanced), scoring 5 to 6 as moderately emotionally balanced and a score of 7 to 10 indicates neuroticism (emotional unbalance). Other traits of neuroticism include retention of affect, somatization, anxiousness, susceptibility to major life stresses, tendency to depression and sleeplessness. On the Extraversion subscale, an individual scoring 1 to 4 stens is regarded as introvertic, scoring 5 to 6 stens as ambivertic and scoring 7 to 10 as extrovertic. An extrovertic person is characterized as sociable, genial, brisk with low rigidity of intellectual control and a high expression of affect. An introvertic individual is restrained, with limited need of social gathering, high rigidity of intellectual control, lack of expression of affect and negative anticipation to the future. An ambivertic person is balanced in respect of intro- and extrovertic traits. On the Psychoticism subscale, an individual scoring 1 to 4 stens is considered normal, scoring 5 to 6 as psychopathic and scoring 7 to 10 as psychotic. Psychoticism is characterized by disorder of cognitive processes, with susceptibility to schizophrenia and bipolar affective disturbances. A psychotic person is solitary, unsociable, frequently cruel and insensible. The Falsehood scale assesses need for social approval or tendency towards advantageous self-presentation. On the Falsehood subscale, an individual scoring 1 to 4 stens is regarded as sincere, frank and not susceptible to social approval, scoring 7 to 10 as insincere and susceptible to social approval and scoring 5 to 6 as balanced in respect of both these traits.

The Adjectives Checklist was designed to assess personality, particularly in respect of structure of...
individual needs. The test asks subjects to select those particular adjectives out of a list of 300 with which they identify themselves. This list of 300 adjectives contains adjectives commonly used to describe individual human personality traits, e.g. lenient, spiteful, anxious, etc. The primary score is further processed, matching it for sex and age, and the final personality characteristic consists of one score in each of 19 subscales. These subscales include: the total number of adjectives selected, protective attitude to the test, conformity scale, the need of self-acceptance, the need for attainment, the need of domination, the need of perseverance, the need of order, the need for self-understanding and understanding by others, the need of giving protection, the need of friendly contacts with others, the need of heterosexual contacts, the need of self-expression, the need of self-dependence, the need of aggression, the need of changes, the need of emotional support, the need of humiliation and the need of submission.

The Beck Depression Inventory (BDI) was used to investigate the presence and level of depression in 27 patients aged 60 years or less. This test has well-established psychometric properties and is commonly accepted in clinical research for depression. The BDI questionnaire consists of 21 items, of which each one consists of four statements in ascending order of severity (numbered 0–3). Statements describe the state of the patient’s feeling over the past 2 weeks. Total scores screen for clinical depression as follows: 0 to 9 no depression, 10 to 18 mild depression, 19 to 29 moderate depression and 30 to 63 severe depression.

In patients older than 60, the Yesavage’s Geriatric Depression Scale (GDS) was employed to distinguish factual depression from depression-like behaviour which, in older age, is not considered pathological. This questionnaire is composed of 30 optional items. Answers are rated on a two-point scale: 0 points for negative and 1 point for positive. Scores 0 to 10 indicate no depression, 11 to 20 mild/moderate depression and >21 severe depression.

The day after the operation, all of the patients were discharged and, thereafter, were followed as outpatients. At 2 months, the patients were examined for symptoms and signs of CRPS Type 1. Twelve of the 62 patients did not attend for follow-up, so, eventually, this study included 50 patients, 32 women (64%) and 18 men (36%) with an age range of 18 to 81 (mean 56) years. Twenty-four patients were employed, 11 as manual workers, 14 as office workers, and the other 26 were retired or on disability pensions for a variety of reasons. The left limb was affected in 29 patients and the right in 21 patients. None of the patients included had a history of psychological or psychiatric problems prior to the injury to the forearm.

The diagnosis of CRPS Type 1 was based on clinical grounds. We did not consider other tests, such as radiography and bone scintigraphy to be helpful in making the diagnosis (Zyluk, 1999). We used a scoring system for assessment of the presence and clinical severity of CRPS Type 1 described by Zyluk (2003) (Table 1). A total score of 4, or more, indicates a mild degree of CRPS Type 1 and the maximum score of 10 indicates the most severe form of CRPS Type 1. The patients were also classified according to Veldman’s criteria to validate the diagnosis (Veldman, 1995). At least four of the five classical signs and symptoms, viz. diffuse pain, diffuse swelling, limited range of motion, abnormal skin colour and temperature relative to other limb, had to be present in an area much larger than the primary trauma and had to be exacerbated by use of the limb to make the diagnosis of CRPS Type 1 (Veldman, 1995). A diagnosis of CRPS Type 1 was only made in patients who both had been scored a minimum of 4 points in the Zyluk CRPS Type 1 scale and met Veldman’s criteria for this diagnosis.

Based on the results of the psychological and the clinical evaluations, we analysed the significance of the differences of scores obtained in all four questionnaires in CRPS Type 1 and non-CRPS Type 1 patients. A Mann–Whitney U-test was used for all statistical calculations.

<table>
<thead>
<tr>
<th>Symptom or sign</th>
<th>Strongly expressed</th>
<th>Moderately expressed</th>
<th>Weakly expressed or absent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain</td>
<td>2</td>
<td>1</td>
<td>0.5</td>
</tr>
<tr>
<td>Reduction of finger flexion</td>
<td>2</td>
<td>1</td>
<td>0.5</td>
</tr>
<tr>
<td>Swelling</td>
<td>1</td>
<td>0.5</td>
<td>0</td>
</tr>
<tr>
<td>Temperature changes</td>
<td>1</td>
<td>0.5</td>
<td>0</td>
</tr>
<tr>
<td>Discoloration (redness, pallor or cyanosis)</td>
<td>1</td>
<td>0.5</td>
<td>0</td>
</tr>
<tr>
<td>Sensory disturbances (tenderness, hypoaesthesia)</td>
<td>1</td>
<td>0.5</td>
<td>0</td>
</tr>
<tr>
<td>Increased sweating (present or absent)</td>
<td>1</td>
<td>—</td>
<td>0</td>
</tr>
<tr>
<td>Shoulder pain and loss of movement (present or absent)</td>
<td>0.5</td>
<td>—</td>
<td>0</td>
</tr>
<tr>
<td>Hair and nail growth changes (present or absent)</td>
<td>0.5</td>
<td>—</td>
<td>0</td>
</tr>
<tr>
<td>Maximal total score</td>
<td>10</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 1—Scoring system for the assessment of clinical severity of CRPS Type 1 (Zyluk 2003)
RESULTS
Nine of the 50 patients (18%), eight women and one man, were scored at 4 points or more at 2 months after fracture, so were diagnosed as having CRPS Type 1. The distribution of symptoms and signs of CRPS Type 1 in the whole group is shown in Table 2. In five patients, scores ranged from 4 to 6, indicating relatively mild CRPS Type 1 and, in the other four patients, the scores ranged from 6.5 to 8.5, indicating the presence of more severe CRPS Type 1. All nine patients also met Veldman's criteria for diagnosis of CRPS Type 1 (Veldman, 1995).

An analysis of the results of the EPQ-R test revealed the following: On the Neuroticism subscale, 25 patients (50%) were classified as emotionally balanced, 20 patients (40%) as moderately balanced and the other five (10%) as neurotic (emotionally unbalanced). On the Extroversion subscale, 23 patients (46%) were classified as ambivertics, 15 (30%) as introvertics, and 12 (24%) as extroverts. On the Psychoticism subscale, 32 patients (64%) were considered normal, 13 (26%) psychopathic and five (10%) psychotic. On the False-hood subscale, 34 patients (68%) were classified as insincere and susceptible to approval, 12 (24%) as moderately sincere and susceptible to approval and the other four patients (8%) as sincere and proof against approval. There were no significant differences in stent-scores on any of four EPQ-R subscales between CRPS Type 1 and non-CRPS Type 1 patients (Mann–Whitney test, minimum \(P > 0.1\)) (Table 3). An analysis of the results of the Adjective Checklist revealed no significant differences in any of 19 subscales between the CRPS Type 1 patients and the non-CRPS Type 1 patients (Mann–Whitney test, minimum \(P > 0.09\)).

Among 27 patients aged 60 years or less, assessment with the Beck Depression Inventory test showed no depression in 24 persons (score 0–9) and mild depression in three (score 10–18). All of the patients diagnosed with depression were non-CRPS Type 1. Among 23 patients older than 60 years, assessed with the Yesavage's Geriatric Depression Questionnaire, 15 had no depression (score <10) and seven (five non-CRPS Type 1 and two CRPS Type 1) had mild/moderate depression (score 11–20). In one non-CRPS Type 1 patient, a severe depression was diagnosed (score 21). A statistical analysis of the scores on the Beck Depression Inventory and the Yesavage's Geriatric Depression assessments revealed no significant differences between CRPS Type 1 and non-CRPS Type 1 patients (Table 3). Therefore, prior to the accident, the patients who eventually developed CRPS Type 1 had not displayed more symptoms of depression than those who recovered uneventfully.

DISCUSSION
Most opinions and research on CRPS Type 1 are based on the study of one condition, namely fracture of the distal radius, because CRPS Type 1 is relatively common after these fractures. This patient population, however, is a specific one, consisting mainly of older women in the postmenopausal group and retired, or disability, pensioners. These people frequently suffer from other diseases typical of the older age groups, usually live alone and have, relatively, many problems of daily living. An accident such as fracture of the distal radius significantly reduces their quality of life for a 2 to 3 month period, until the fracture consolidates and hand function improves sufficiently. This period of poorer health may be the cause of lowering of the mood, anxiety and depression-like behaviour, which can be regarded as factors predisposing to CRPS Type 1. However, only a minority of these patients develop CRPS Type 1 and the majority recover uneventfully, in spite of having the same difficulties in daily living. Thus, it was of importance to assess the psychological profile of patients immediately after fracture to identify any psychological features, should they pre-exist, which might be responsible for the development of CRPS Type 1 after injury.
Excepting that of Field and Gardner (1997), none of the previously published studies have presented the results of psychological assessments prior to onset of CRPS Type 1. These authors used the GHQ 30 test for investigation of the level of psychological distress in 100 patients with Colles fracture treated conservatively. The questionnaire was administered at both 1 week and 3 months after fracture. At 9 weeks, all patients were examined for symptoms and signs of CRPS Type 1 and formal diagnosis of the condition was made on the basis of the presence of finger tenderness, swelling, finger stiffness and vasomotor instability. Twenty-four of 100 patients had all four features and were diagnosed as having CRPS Type 1. Statistical analysis of the scores obtained in the GHQ 30 test at 1 week revealed no significant differences between patients who at 9 weeks were diagnosed as having CRPS Type 1 and those who recovered uneventfully (Field and Gardner, 1997). The authors concluded that CRPS Type 1 patients did not display increased distress before the onset of the condition.

The results of our study show that patients who developed CRPS Type 1 after fracture of the distal radius did not display a unique, or particular, psychological pattern or psychological dysfunction when assessed with two standardized questionnaires, as compared to those who recovered uneventfully (Field and Gardner, 1997). The authors concluded that CRPS Type 1 patients did not display increased distress before the onset of the condition.

The results of our study show that patients who developed CRPS Type 1 after fracture of the distal radius did not display a unique, or particular, psychological pattern or psychological dysfunction when assessed with two standardized questionnaires, as compared to those who recovered uneventfully. Although, we performed a more comprehensive psychological examination, our conclusions are, broadly, in agreement with those of Field and Gardner (1997).

Other papers concerning this problem have usually been focused on psychological abnormalities found in patients with long-lasting CRPS Type 1 and, therefore, may be biased in favour of this painful and disabled condition, which can cause secondary changes in patients’ psychological profiles. The design of these studies has not allowed differentiation between the presence of psychological disturbances as the cause of CRPS Type 1 and as the result of CRPS Type 1. Pollack et al. (1980) used two standardized questionnaires to compare personality traits and psychological distress in 40 CRPS Type 1 patients, called “Sudeck’s Syndrome” at that time, and 20 non-CRPS Type 1 (control) patients. Two personality types were identified in their group. “Sudeck A” type was characterized by emotional unbalance, increased anxiety, decreased confidence and tendency towards depression and somatization, whereas “Sudeck B” type was characterized by increase in self-confidence and tendency to dissimulation and extroversion. The personality type “Sudeck A” occurred significantly more frequently among CRPS Type 1 patients than in the control group and the authors suggested that these personality traits predispose one to develop CRPS Type 1 after injury (Pollack et al., 1980).

Some authors have employed the Minnesota Multiphasic Personality Inventory (MMPI) to assess the personality of patients suffering from chronic pain. CRPS type 1 is generally classified in two types: acute CRPS 1 (former stage 1—acute) and chronic CRPS 1 (former stage 2, dystrophic and stage 3, atrophic) (Veldman, 1995). The articles quoted below mainly consider chronic form of CRPS 1. Grunert et al. (1990) found significantly elevated scores on the Hypochondriasis and Hysteria scales in 18 of 20 CRPS Type 1 patients. Based on this finding, they presumed there to be a psychogenesis in the background of the condition and introduced a treatment consisting of thermal biofeedback, relaxation and psychotherapy. The results were satisfactory in reducing subjective pain and increase of hand temperature, but there was no control group in their study, making the validity of these outcomes less certain. Subbarao and Stillwell (1981) found abnormal ratings on the Hysteria, Depression and Hypochondriasis scales in 14 of 45 patients who had been treated for CRPS Type 1. However, these authors did not make any definitive conclusion regarding psychogenic aetiology of the disease.

Montu et al. (1998) found a high incidence of personality pathology and major depressive disorders, both in 25 CRPS Type 1 patients and 25 patients with chronic back pain. They concluded that these psychological abnormalities may represent an exaggeration of

### Table 3—Results of the psychological examination into the study

<table>
<thead>
<tr>
<th>Test/subscale</th>
<th>Score (mean value)</th>
<th>Statistical significance</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>CRPS Type 1 patients</td>
<td>Non-CRPS Type 1 patients</td>
</tr>
<tr>
<td><strong>EPQ-R subscales</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neuroticism</td>
<td>4.3</td>
<td>4.5</td>
</tr>
<tr>
<td>Extroversion</td>
<td>4.8</td>
<td>5.4</td>
</tr>
<tr>
<td>Psychoticism</td>
<td>2.8</td>
<td>4.2</td>
</tr>
<tr>
<td>Falsehood</td>
<td>8.2</td>
<td>7.1</td>
</tr>
<tr>
<td><strong>Adjective Checklist</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td><strong>Beck Depression Inventory</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5.0</td>
<td>5.0</td>
</tr>
<tr>
<td><strong>Yesavage Geriatric Depression Scale</strong></td>
<td>9.0</td>
<td>9.5</td>
</tr>
</tbody>
</table>

*Scores on 19 subcales were not statistically different between CRPS Type 1 and non-CRPS Type 1 patients.
maladaptive personality traits and coping styles as a result of chronic, intense pain states (Monti et al., 1998).

Ciccone et al. (1997) used a battery of questionnaires to investigate psychological dysfunction in patients with CRPS Type 1, chronic back pain and local neuropathy. They found no evidence to suggest that patients with CRPS Type 1 were psychologically unique. Rather, CRPS Type 1 patients were remarkably similar to those with local neuropathy in respect of adaptation to the illness and psychological distress.

In summary, the results of the aforementioned retrospective studies show that patients with long-lasting CRPS Type 1 display significant degrees of personality abnormalities but provide no evidence that these were present prior to the inciting, usually traumatic, event. The presence of peculiar psychological patterns predisposing to CRPS Type 1 has also not been proved in these articles.

Although several tests for assessment of personality traits include evaluation of depression, many authors use specific tools to investigate this problem separately because depression is suspected of being a facilitating factor in the initiation and mediation of many somatic disorders. It has been suggested that traumatic social life events followed by depression may increase nociception and contribute to the development of CRPS Type 1 (Geertzen et al., 1998). Our results failed to show that patients who eventually developed CRPS Type 1 had more features of depression prior to the accident than those who recovered uneventfully. We only found that older patients (>60 years), in general, were more depressive at presentation than younger patients.

Several authors have investigated whether there had been a traumatic social life event prior to the inciting injury and onset of CRPS Type 1 which might have facilitated development of the condition. Geertzen et al. (1998) looked for the presence of traumatic social life events (SLE) and psychological problems prior to the onset of CRPS Type 1 in a group of 65 patients at a mean of 5.5 years after the CRPS event. These authors used a Social Readjustment Rating Scale to investigate this issue and found traumatic social life events or psychological problems in 60% of patients at the time of the inciting traumatic event. They concluded that such traumatic social life events and psychological problems may promote the development of CRPS Type 1 more often than is generally believed (Geertzen et al., 1998). Horowitz (1984) reported that 7 of 11 patients with causalgia of iatrogenic origin had suffered from a depression regarded to be reactive to the causalgia. Although an interview revealed a history of childlike dependent personality, poor insight and difficulties handling stress in six of these patients, this diagnosis was largely based on the patients’ recall of a depression being present in the past. Ciccone et al. (1997) employed the Beck Depression Inventory questionnaire to compare the incidence of clinical depression in patients with CRPS Type 1, chronic back pain and local neuropathy. They found a similar incidence of mild/moderate depression in CRPS Type 1 and back pain patients (40% and 41%, respectively), but a significantly lower incidence (24%) of mild/moderate depression in the neuropathy group. The incidence of depression in the CRPS Type 1 group was higher than in our study, but the authors examined patients with chronic CRPS Type 1 and this had probably caused an increased incidence of depression.

In summary, the results of previous studies show that patients with chronic CRPS Type 1 display more depressive traits than is noted in the normal population. Only the results of Geertzen et al. (1998) suggest traumatic social life events to be present before the onset of CRPS Type 1 and thus, to, possibly, be facilitating factors in the development of CRPS Type 1. However, one must be aware that this study might have been biased by its retrospective design and the fact that it was based on patients’ recall of the psychological situation in their past.

We consider the results of our study to be important for several reasons. Firstly, excepting the work of Field and Gardner (1997), it is the only prospective trial which has investigated this problem. Secondly, a series of 4 standardized, reproducible questionnaires was used to assess personality, distress and depression, with an experienced psychologist to interpret the results. Thirdly, the diagnosis of CRPS Type 1 was based on clear, reproducible diagnostic criteria. We are aware, however, of some drawbacks in our study. First, it included a relatively modest number of patients. Another disadvantage is that the International Association for Study of the Pain (IASP) criteria for diagnosis of CRPS Type 1 were not employed in our study (Merskey and Bogduk, 1994). These criteria were not used as they include several diagnostic tests, such as radiography, three-phase bone scintigraphy and sympathetic block. Based on our own experience and the results of previous studies, we do not consider these tests to be helpful in making the diagnosis of CRPS Type 1 (Veldman, 1995; Zyluk, 1999). A review of the literature shows that there is not universal agreement concerning the use of the IASP criteria for diagnosis of CRPS Type 1 (Harden et al., 1999; van de Beek et al., 2002).

References


