Child abuse and dissociation in patients with Complex Regional Pain Syndrome

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OBJECTIVE: In the absence of a proven medical explanation for the chronic pain syndrome Complex Regional Pain Syndrome type I (CRPS I), this study explored a hypothetical link between childhood physical and sexual abuse, and the subsequent development of CRPS I. The hypothesis predicts the existence of a subpopulation of CRPS I patients with a high frequency of dissociative experiences corresponding to a history of childhood trauma.
DESIGN: To test this theory, CRPS I patients attending the Auckland Hospital Pain Clinic, Auckland, New Zealand were assessed by self-report questionnaires for their frequency of dissociative experiences and for a history of childhood abuse. The data were compared with those of a low back pain control group and a healthy, pain-free control group.
RESULTS: CRPS I patients were not unusually dissociative and had not experienced significantly higher rates of childhood abuse than the general population. Two of the 18 CRPS I patients were highly dissociative; both reported childhood sexual abuse.
CONCLUSIONS: A trauma-dissociation pathway to CPRS I was not found. The desirability of screening for that subpopulation of CPRS I sufferers who may have been abused is discussed.

Key Words: *Child abuse, Complex Regional Pain Syndrome, Dissociation*

Violence subie durant l'enfance et dissociation chez les patients présentant un syndrome complexe de douleurs régionales

OBJECTIF : Vu l'absence d'explication médicale confirmée pour le syndrome complexe de douleurs chroniques régionales de type I (CRPS I, pour *complex regional pain syndrome*), cette étude visait à explorer un lien hypothétique entre de mauvais traitements physiques et sexuels subis durant l'enfance et le développement subséquent du CRPS I. Selon l'hypothèse, on noterait chez une sous-population de patients atteints de CRPS I une fréquence élevée d'expériences dissociatives correspondant à des antécédents de violence subie durant l'enfance.

MODÈLES : Pour vérifier l'hypothèse, des patients atteints de CRPS I participant à une clinique de la douleur d'un hôpital d'Auckland, en Nouvelle-Zélande, ont été évalués au moyen d'autoquestionnaires portant sur la fréquence de leurs expériences dissociatives et sur des antécédents de mauvais traitements subis durant l'enfance. Les données ont été comparées à celles d'un groupe de patients témoins souffrant de lombalgie et à celles d'un groupe témoin en bonne santé n'éprouvant pas de douleur.

RÉSULTATS : Les patients souffrant de CRPS I ne présentaient en général pas de troubles dissociatifs et n'avaient pas expérimenté de taux significativement plus élevé de mauvais traitements durant l'enfance en comparaison avec la population générale. Deux des 18 patients atteints de CRPS 1 présentaient d'importants troubles dissociatifs et ont signalé avoir été victimes de mauvais traitements durant leur enfance.

CONCLUSION : On n'a pas trouvé de lien entre traumatisme et CPRS I. Le présent article porte sur la justification d'un dépistage auprès de cette sous-population de patients souffrant de CRPS I.

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The term 'Complex Regional Pain Syndrome' (CRPS) (1,2) was adopted in 1993 (3). Previously, disorders of this type were classified as reflex sympathetic dystrophy (RSD) and causalgia. The former, now termed CRPS type I, are cases where nerve lesion is not evident. The defining element of CRPS I is pain disproportionate to the magnitude of the inciting injury (usually of the limbs). Diagnosis requires additional features in the distal aspect of the extremity such as temperature change, abnormal sudomotor activity, unusual skin colour changes or edema. The pain is usually excruciating, often continuous and exacerbated by psychological stress, movement and physical stimulation. CRPS I usually starts acutely rather than slowly (1) and, if untreated, may be continuously present for an indeterminate period lasting months, years or a lifetime (4).

Of 1156 pain clinic patients studied by Carron and Weller (5), 123 (11%) met their criteria for RSD. It is difficult, however, to generalize from pain clinic populations to the wider population. The frequency of CRPS I with respect to age is distributed normally, with a peak at 50 years of age (1); both children (6) and the elderly (2) are susceptible to the disorder. The proportion of CRPS I sufferers who are female ranges from 45% (4) to 75% (2), with a higher proportion (84%) among children (6).

The vasomotor changes seen in CRPS I patients and the pain relief sometimes achieved through sympathectomies and sympathetic blocks have led some clinicians to assume that the sympathetic nervous system plays a causal role (7). Livingston's (8) 'vicious circle' theory attributed the symptoms of CRPS I to afferent nociceptors in the area of the injury reflexively triggering activity in sympathetic neurons, which in turn further stimulate nociception, setting up a cycle of increased pain coupled with increased sympathetic activity. Others propose that sympathetically stimulated low-threshold mechanoreceptors and wide dynamic range neurons are also involved (9).

Ochoa (10) and Ochoa and Verdugo (11), however, argue that the concept of sympathetically maintained pain should be discarded because the data showing subjective improvement in pain following sympathetic blocks have failed to take into account the powerful placebo effect of these procedures (12). Ochoa proposes that CRPS I has a psychogenic basis in many patients (10).

Currently, there is no single treatment for CRPS I, and rehabilitation requires multiple interventions, including physical therapy to redress the effects of restricted movement (13), sympathetic blocks to create relatively pain-free periods to facilitate physical therapy (7), anti-inflammatory agents (14), transcutaneous electrical nerve stimulation (15) and antidepressants (16).

The absence of a proven neurophysiological explanation, together with the discrepancy between the degree of physical trauma and the severity of the pain, has given credence to the hypothesis that psychological factors may be involved in the pathogenesis, maintenance or exacerbation of the syndrome (17,18).

Lynch (19), however, identifies methodological flaws in studies purporting to find a psychological etiology for CRPS I and suggests that the psychological problems seen in patients with CRPS I are caused by the pain they experience, as opposed to the proposition that the psychological problems cause, or are a major contributing factor in, the pain. However, in her relegation of psychology to a purely exacerbating role, Lynch does not refer to the fact that methodological problems have also compromised medical research (eg, not controlling for placebo effects) (10-12) and that there is considerable conceptual disagreement among medical researchers regarding the pathophysiology of CRPS I (11).

Others, while critical of the conceptual and methodological weaknesses in psychological research, remain open to the possibility that psychology may play a role in the maintenance or etiology of CRPS I for some patients (20). However, as Covington (21) notes, there is no substantive evidence for an exclusive psychological etiology. CRPS I may, however, be comprised of a physiologically diverse group of conditions, arrived at via multiple causal pathways, some of which may involve psychological phenomena. It seems useful, therefore, to establish whether subpopulations of CRPS I patients exist where psychological, behavioural or cultural factors are influential in the pathogenesis, exacerbation or maintenance of the syndrome. Identifying salient psychological factors may assist the development of treatment approaches that take these into account.

Research on a possible psychogenesis of CRPS I has typically employed retrospective designs that cannot determine whether psychological factors come before or after the development of CRPS I. Researchers have tried to offset this problem with the use of control groups. Pollack et al (22) administered psychometric tests to 40 patients who developed Sudeck's atrophy (CRPS) subsequent to radius fracture, and a control group of 20 patients who also sustained a radius fracture but who had not developed Sudeck's. The authors discerned a personality type, characterized by emotional lability, heightened anxiety, depression and somatization, which, they argued, is particularly prone to develop Sudeck's. However, a more recent study comparing CRPS I patients with two control groups (low back pain [LBP] patients and headache patients) found that the patients with CRPS I did not appear to be uniquely troubled in psychological functioning (23).

Psychoanalytical theorists have suggested that severe pain with no identifiable organic basis may be a somatic representation of unconscious intrapsychic conflict (24). Emotional pain too distressing or incompatible with the individual's self-concept is displaced into less threatening physical complaints. It is possible that conversion symptoms may manifest as CRPS I in a subgroup of patients. The *Diagnostic and Statistical Manual* (DSM IV) definition of conversion disorder requires the presence of "symptoms or deficits affecting voluntary motor or sensory function that suggests a neurological or general medical condition" that cannot be accounted for by any identifiable medical cause or malingering, but are associated with life stressors and other psychological factors (25).

Covington (21) noted that although it is theoretically possible for conversion mechanisms to be involved in a minority of CRPS I patients, this is difficult to establish by empirical means.

Reports endorsing psychoanalytical formulations of pain states are largely anecdotal, uncontrolled and impressionistic (26). However, formulations involving a link with psychosocial stressors, including childhood trauma, are more amenable to research. Bruehl and Carlson (17) speculate that psychophysiological processes may be involved in the etiology of CRPS I. They argue that stress promotes physical responses such as alpha-adrenergic activity and autonomic arousal, which in turn cause pain to develop. Van Houdenhove et al (27) developed a 'biopsychosocial' model of CRPS I. They suggest that when physical injury coincides with a period of psychological stress, such as the loss of a loved one, and when the person is engulfed in a sense of helplessness, these factors can facilitate autonomic nervous system changes such as increased alpha-adrenergic activity or result in maladaptive coping techniques, fostering disuse and atrophy of the affected limb. Van Houdenhove (18) reported that of 32 CRPS I patients attending a pain clinic, 31 had suffered a major life stressor, typically a loss, concurrent with the onset of CRPS I.

The literature rarely discusses the role that traumatic stress in childhood may play in increasing an individual's susceptibility to CRPS I (28). There is growing acceptance that child abuse is more common than previously imagined (29). A recent New Zealand study found that nearly one woman in three reported having one or more unwanted sexual experiences before the age of 16 (30). Numerous researchers have concluded that the trauma engendered by these kinds of experiences is a significant etiological factor in the development of psychological problems including depression, anxiety, substance abuse, self-destructive behaviour and sexual maladjustment (31). This conclusion is strengthened by studies showing that the relationship between childhood abuse and psychological problems in adulthood remains when factors such as parental dysfunction and socioeconomic factors are controlled for (32,33). Of particular importance to the present study are the findings that child abuse is also related to dissociative symptoms and disorders (34-36). The recent review by Read (37) demonstrates that childhood abuse is highly correlated with psychotic symptoms, including those resembling dissociation.

The key feature of dissociative disorders as defined by the DSM-IV is "a disruption in the usually integrated functions of consciousness, memory, identity, or perception of the environment" (25). In extreme symptoms of dissociation, as in dissociative identity disorder (DID), memories and emotions associated with traumatic incidents are compartmentalized into distinct identity states, each recurrently taking control of the individual's behaviour. In less florid dissociative pathology, the individual retains a relatively coherent sense of self-identity but may feel a strong sense that the external environment is strange or unreal (derealization), or experience a profound sense of alienation or detachment from their body and mental processes (depersonalization). Most theorists emphasize the initially defensive and, therefore, adaptive nature of dissociation, but that it can become maladaptive when generalized beyond the context of the formative traumatic events (38,39).

Walker et al (40) found that women with chronic pelvic pain were significantly more likely to have experienced severe childhood abuse and to use dissociation (54%) than a comparison group without chronic pelvic pain (5%). The incidence of childhood abuse in patients with irritable bowel syndrome appears to be higher than in the general population (41). In one study, 92% of patients with Briquet's syndrome (somatization disorder) reported a history of childhood abuse (42). A strong relationship between childhood abuse and somatization has been reported in patients diagnosed with dissociative identity disorder (43,44). In an investigation of pain clinic patients suffering from chronic pain of various types, Goldberg (45) found a statistically significant relationship between depression and childhood abuse. Goldberg concluded that the relationship between chronic pain and depression may be, in part, attributable to abusive experiences in childhood.

While it would be premature to propose specific mechanisms by which childhood trauma may lead to CRPS I in some patients, studies have shown that abused children show signs of neurological dysfunction such as electroencephalogram abnormalities, clinical seizures and soft neurological symptoms, even when there has been no apparent or reported head injury (46,47). Numerous other psychobiological effects of trauma, including limbic system dysfunction and changes in the neuromodulation of arousal, may increase the likelihood of developing somatic complaints (48).

The clinical implications of establishing whether CRPS I is related to childhood trauma are illustrated by Gainer's (28) discussion of a successful treatment of a highly dissociative CRPS I patient who reported childhood abuse. Aside from having the usual diagnostic hallmarks of CRPS I such as vasomotor dysregulation and allodynia, an idiosyncratic feature of this patient was that her foot would twist in an involuntarily painful spasm between two positions. She had a history of depressive illness that preceded the onset of CRPS I. She also reported a history of dissociative experiences including derealization, depersonalization and amnesia. She claimed to have no memory of her childhood between the ages of eight and 12 years. Gainer states that she, "…experienced complete remission by recovering and working through dissociated memories of childhood trauma" and that "She came to understand the RSD (CRPS I) symptoms as symbolic of, and related to, specific dissociated memories."

Is it possible that post-traumatic physiological changes can lead, via unidentified mechanisms, to the development of CRPS I? If it is an etiological factor for some patients, then treatment that addresses the issues of the antecedent trauma may provide an important component in rehabilitation. The first step to address this question is to determine whether CRPS I patients exhibit high levels of post-traumatic symptoms concomitant with high levels of childhood abuse.

Mindful of Lynch's (19) criticisms of previous psychological research, this study has incorporated sex-matched control groups and well validated psychological and diagnostic measures to explore the following two hypotheses.

1. CRPS I patients are more likely than the LBP control group or the healthy control group to report childhood physical and sexual abuse.

2. CRPS I patients report a significantly higher frequency of dissociative experiences than the control groups.

PATIENTS AND METHODS

Subjects

Of 48 patients consecutively admitted to the pain clinic for suspected or diagnosed CRPS I, a total of 18 patients completed the questionnaires (37.5%). Patients were excluded for the following reasons: they did not satisfy the authors' diagnostic criteria for CRPS I (23), their physicians declined permission on other grounds (4) or they declined to participate (3). CRPS I was diagnosed by the patient's physician in accordance with the following diagnostic criteria of the International Association for the Study of Pain (49).

1. The presence of an initiating noxious event, or a cause of immobilization.

2. Continuing pain, allodynia or hyperalgesia with which the pain is disproportionate to any inciting event.

3. Evidence at some time of edema, changes in skin blood flow or abnormal sudomotor activity in the region of the pain.

4. This diagnosis is excluded by the existence of conditions that would otherwise account for the degree of pain and dysfunction.

Patients had to satisfy criteria 2 to 4 to be included in the study. Criteria 1 is not considered necessary for diagnosis because the initiating event is often difficult to establish (eg, the patient may not recall the inciting event). All patients had to have had CRPS I symptoms for a period of no less than six months.

Of 30 consecutive patients diagnosed with LBP of known mechanical origin, 14 completed the questionnaires (46%). Patients were excluded from the study if they had symptoms of sympathetic dysfunction comparable with those of CRPS I (12) or if they declined to participate (4). All patients who participated in the study were diagnosed by their physician as having chronic LBP of no less than six months' duration.

Of 27 first-year psychotherapy students who agreed to be control subjects, 20 were included in the study (74%). Students were excluded if they did not supply sufficient demographic data (6) or if they currently suffered any form of chronic pain (1).

Measures

Self-report information regarding age, sex, marital status, ethnicity, education and employment was collected in questionnaire format.

Inquiry into the patients' dissociative phenomena was made using the Dissociative Experiences Scale (DES) (50). The DES is a 28-item self-report questionnaire that assesses the frequency of a range of dissociative experiences, including depersonalization, derealization, imaginative involvement, identity confusion and amnesia. Subjects are asked to estimate the percentage of time that such experiences occur by circling a percentage on a visual analogue scale (between 0% and 100%). The final DES score is the average score of the 28 items. High scores (DES greater than 25) on this scale are often associated with DID and post-traumatic stress disorder (PTSD) (50-52). Test-retest reliability coefficients of 0.84 (50) and 0.96 (52) have been reported for the DES, which also has good criterion validity and construct validity, with item scores and scale scores highly correlated (53).

CRPS I patients who scored above 25 on the DES were invited to take part in a Structured Clinical Interview for DSM-IV Dissociative Disorders (SCID-D) (54) conducted by one of the researchers. The SCID-D is designed to assess dissociative symptoms and to make DSM-IV diagnoses of the five dissociative disorders: dissociative amnesia, dissociative fugue, depersonalization disorder, DID and dissociative disorders not otherwise specified. The 1.5 h interview asks open-ended questions about experiences of amnesia, depersonalization, identity confusion, hallucinations, spontaneous age regressions and traumatic flashbacks. The SCID-D has excellent reliability and discriminant ability (54,55).

The Life Experiences Questionnaire has been used in a number of studies to determine the incidence of childhood physical and sexual abuse (56). In the present study, only two questions from the original format were used:

> "Has an adult or older person ever involved you in any unwanted incidents before the age of 16 of (a) touching or fondling your private parts, (b) made you touch them in a sexual way, (c) attempted or completed sexual intercourse and (d) other unwanted sexual activities?" and

> "Everyone gets into conflicts with other people and sometimes these lead to physical blows such as hitting really hard, kicking, punching, stabbing, throwing someone down, etc. Before the age of 16, did any adult do something of this nature to you?"

Written approval for this study, including the arrangements that were made for any participants distressed by the abuse questions to receive follow-up from mental health professionals, was received from the appropriate local review body (North Health Ethics Committee).

TABLE 1
Reports of physical and sexual abuse in Complex Regional Pain Syndrome, lower back pain and healthy control groups

Abuse History	CRPS I (n= 18) n (%)	LBP (n=14) n (%)	CON (n=20) n (%)
Sexual abuse only	5 (27.8)	0 (0)	4 (20.0)
Physical abuse only	1 (5.6)	4 (28.6)	2 (10.0)
Sexual abuse	6 (33.3)	2 (14.3)	8 (40.0)
Physical abuse	2 (11.1)	6 (42.9)	6 (30.0)
Either sexual or physical abuse	7 (38.9)	6 (42.9)	10 (50.0)
Both sexual and physical abuse	1 (5.6)	2 (14.3)	4 (20.0)

CON Control group; CRPS Complex Regional Pain Syndrome; LBP Lower back pain

TABLE 2
Median dissociation scores of total subject pool with and without histories of physical and sexual abuse

	History of sexual abuse			
	No (n=36)		Yes (n=16)	
History of physical abuse	N	DES score	N	DES score
No (n=38)	29	7.14	9	11.07
Yes (n=14)	7	10.00	7	10.00

DES Dissociative Experiences Scale

Analysis

Because previous analyses have shown that scores on the DES are not normally distributed (57), and because of the small sample sizes, nonparametric statistics were used for the analysis of the DES. Comparisons among the three groups were made using the Kruskal-Wallis 1-way ANOVA test; comparisons between two groups were made with the Mann-Whitney U-Wilcoxon rank sum test, and the Spearman rank order correlation was used to determine degree of association. ^{2} tests were used to assess differences among the three groups on indexes of childhood abuse, ethnicity, marital status, employment and level of education.

RESULTS

Sample characteristics

There were no significant differences among the three groups in terms of age (range of group means – 38.9 to 42.5 years), sex (75.0% to 78.6% female) and race (95% to 100% Caucasian). However, all subjects in the control group had been trained at the tertiary level, whereas only 50% of the LBP patients and 38.9% of the CRPS I patients had received a tertiary education (P<0.001). Thirteen of the 18 CRPS I patients (72%) had symptoms in the upper extremity (hand/shoulder area). Symptoms in the lower extremity (foot/leg area) affected five patients (28%).

Dissociative experiences

The median DES scores for the three groups (CRPS=8.6, LBP=6.61, CON=9.82) were consistent with the general population mean (10.8±10.2) (57) but well below the level of dissociative symptoms (median DES=57.1) characterized by patients with dissociative identity disorder (50). A Kruskal-Wallis 1-way ANOVA found no significant difference among the DES scores of the three groups.

Two CRPS I patients, both female, had DES scores above 25 (27.5 and 27.8), one female LBP patient had a DES score above 25 (33.2), as did one female control subject (56.1). The two CRPS I patients who scored over 25 were assessed with the SCID-D. One patient met the DSM-IV criteria for DID, the other patient met the diagnostic criteria for depersonalization disorder.

Childhood abuse

Table 1 shows that 38.9% of the CRPS I patients, 42.9% of the LBP patients and 50% of the control patients reported experiencing some form of abuse. A ^{2} analysis found that these differences were not statistically significant (^{2}=4.89, two degrees of freedom, P>0.05). The CRPS I patients reported significantly more 'sexual abuse only' (27.8%) than the LBP patients (0%) (^{2}=4.61, one degree of freedom, P<0.05), but no significant difference was found between the CRPS I patients and the healthy control subjects (20%).

Of the 14 women in the CRPS I group, six (42.8%) reported sexual abuse compared with only two of the 11 women with LBP (18.2%). Conversely, women with LBP reported more physical abuse (54.5%) than those with CRPS I (14.3%). However, neither difference was statistically significant.

Dissociation and childhood abuse

Table 2 shows the median DES scores for each category of childhood abuse. The median DES scores for the different forms of abuse were all consistent with those of the general population mean (10.8±10.2) (57). To test whether there was a significant difference between the DES scores of those who reported abuse and those who did not report abuse, the subjects' abuse histories and their DES scores were submitted to a Mann-Whitney U-Wilcoxon rank sum test. In total, 29 of the subjects reported no abuse and 23 reported some form of abuse. The DES scores of the abused group were significantly higher than the scores of the nonabused group (W=645.0 (two-tailed), P<0.05).

DISCUSSION

Limitations of the study

The research is exploratory, and definitive statements about the dissociative features of CRPS I require further research. One limitation is the small sample size of the three groups. This led to an increased likelihood of finding no significant differences among the three groups.

Another limitation is the use of psychotherapy students as controls; the caring professions attract those who have a troubled personal history (58). By inclination and training, they may also be more likely to think and talk about their personal victimization and, therefore, more likely to report it in a questionnaire. In addition, because dissociation is a concept taught in this course, they are more likely than the general public to have reflected on their dissociative experiences. These factors may account for the control group reporting the highest childhood abuse statistics and the highest median DES score. Further investigations seeking a 'healthy control group' should avoid clinicians or clinical students.

By using only two of the questions from the Life Experiences Questionnaire, this study may have missed information regarding other traumatic experiences.

In the present study, some patients expressed concern that the research was attempting to link CRPS I to psychological problems. Some interpreted the questions as inferring that the pain was 'all in their head'. It is possible that this concern may have created an unwillingness to answer the questions honestly, perhaps resulting in lower DES scores and lower reporting rates of childhood abuse in the CRPS I sample.

These limitations may have served to reduce the chances of confirming the two hypotheses of the study.

Dissociation

Because the CRPS I patients do not show a significantly greater incidence of dissociative phenomena than the group of LBP patients or the group of healthy subjects, there is no evidence to support the notion that CRPS I patients are characterized by trauma-driven dissociative symptoms. The CRPS I median DES score of 8.6 is well below the median DES score of 31.3 found in patients with PTSD or that of 57.1 in patients with DID (50).

Two of the 18 CRPS I patients (11%) had DES scores above 25, the elected cut-off score for further screening with the SCID-D. This proportion is not high. A large community study found that 8.5% of a random sample of 1055 adults in Canada scored above 25 on the DES (57). The proportion of CRPS I patients scoring highly on the DES is considerably less than in other clinical populations where dissociation is considered to play a significant role in psychopathology (50).

SCID-D interviews with the two high scoring CRPS I patients indicated that one patient met the diagnostic criteria for DID and that the other met the criteria for depersonalization disorder. Although these two female patients, both of whom had a history of childhood sexual abuse, might be considered to fit the trauma-dissociation pathway for the development of CRPS I, no conclusions about CRPS I patients in general are warranted.

Childhood abuse

The prevalence of childhood abuse reported by the CRPS I patients (38.9% overall and 50% for women) is only marginally higher than that found in the general population (29,31,32), and such a small difference with the use of a sample size of 18 warrants no conclusions. Furthermore, the percentages were not higher than those of the two control groups. Moreover, the childhood abuse prevalence data for the CRPS I patients are slightly lower than prevalence data reported by Goldberg (48), who found that 48% of 201 chronic pain patients with a variety of diagnoses reported a history of physical and/or sexual abuse. The rate is also slightly lower than that reported in other clinical populations where abuse is considered to play an important role in psychopathology (37,56,59).

Dissociation and abuse

The finding that the 23 subjects who reported abuse had significantly higher DES scores than the 29 subjects who did not report abuse confirms the robust relationship between dissociative symptoms and childhood abuse (34-36,59).

CONCLUSIONS

The present research is not able to definitively dismiss the possibility that, for a minority of patients, psychological trauma may result in the enduring biological changes seen in CRPS I. Two (11%) of the CRPS I patients had dissociative symptoms that are consistent with this hypothesized etiological pathway. Both of these patients reported sexual abuse. Is it possible that for a few such patients the externally oriented hypervigilance experienced by PTSD sufferers is paralleled by an internally focused hypersensitivity to pain?

Perhaps childhood abuse and the presence of a dissociative or post-traumatic disorder should be considered potentially important etiological variables if a CRPS I patient presents with a high level of dissociative pathology. The finding that 43% of the women with CRPS I but only 18% of the women with LBP reported sexual abuse, although not statistically significant, warrants further investigation. This particular research avenue should be informed by the finding that as many as 84% of child CRPS I sufferers are girls (6).

In light of the success claimed by Gainer (28) with his psychological treatment of a dissociative CRPS I patient, such an approach may be justified for patients fitting this profile, particularly given the paucity of effective medical treatments for CRPS I. If the CRPS I symptoms of some patients are related to their experiences of childhood abuse, it seems unlikely that effective treatment can take place without acknowledgement of these experiences. Victims of abuse often feel a sense of guilt, suffer from low self-esteem and feel damaged by their life experiences (60). If the professional is alert to the role of abuse in creating these characteristics, they are less likely to unintentionally reinforce these negative self-beliefs. Professionals can become frustrated by the complex clinical presentation of CRPS I patients and may sometimes be inclined to view them as demanding and their plight unsalvageable. Appreciating the childhood suffering that the dissociative patient has endured may help the profes-

sional sympathize with the patient's CRPS I symptoms and to empathize with the overwhelming nature of the struggle they face.

Data from the present study suggest that, in general, CRPS I patients are not unusually dissociative and that they have not experienced an unusually high prevalence of childhood abuse. There may, however, be value in assessing CRPS I patients on a routine basis for a childhood abuse history and for dissociative experiences. The questionnaires used in the present study require only about 10 mins of a patient's time- and can easily form a component of an initial assessment battery in a pain clinic. Although most CRPS I patients do not appear to score highly on these measures, the minority who do may benefit from psychotherapeutic interventions that address psychosocial and psychosomatic issues related to their experiences of trauma. As Covington (21) pointed out, CRPS I patients are probably a very heterogeneous group with a variety of psychological and organic factors influential in their pain symptoms, and different intervention strategies for particular subgroups of patients may be required.

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