PSYCHOLOGICAL ASPECTS
A SERIES OF 104 POSTTRAUMATIC CASES OF REFLEX SYMPATHETIC DYSTROPHY

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Over a period of 12 years, 104 cases of posttraumatic reflex sympathetic dystrophy have been diagnosed, followed up and treated according to a standard protocol, including, among other clinical items, a psychiatric examination. Apart from the traditional clinical recordings, the following has been noted :

1. **All patients were over 30 years of age ;**
2. **No relationship was found between the significance of the trauma and the severity of the dystrophy ;**
3. **The dystrophy nearly always emerged at the time of the primary healing of the injury ;**
4. **On psychiatric examination, 96% of the patients showed signs of chronic depression ;**
5. **Forty-nine percent had elevated γ GT suggestive of alcohol abuse ;**
6. **The socioprofessional context always revealed :**
   - **either a state of inactivity (jobless persons, disabled persons, childless housewives, pensioners) ;**
   - **or an opportunity for inactivity (work injury suffered by workers, lower-rank employees, bankrupt self-employed people).**

There were no tradesmen, executives, lawyers, physicians, consultants, artists, sportsmen or musicians in the series, and no housewives with young children.

7. **In the second phase of the survey, we decided to complement the drug therapy by systematically adding antidepressant agents. This led to a significant improvement in the course of the disease.**

These elements have led us to consider whether traumatic algodystrophy could be a psychosomatic disease.

Keywords : antidepressant agents ; calcitonine ; methylprednisolone ; nifedipine ; reflex sympathetic dystrophy ; algodystrophy ; psychology.

Mots-clés : antidépresseurs ; calcitonine ; méthylprednisolone ; nifédipine ; dystrophie réflexe sympathique ; algodystrophie ; psychologie.

INTRODUCTION

The literature on posttraumatic reflex sympathetic dystrophy (RSD) is abundant, but the series are generally short. Although the psychological aspects are currently mentioned, they have seldom been systematically studied. In 1986 Van Houdenhove (11) pointed out "the scarce psychological literature on this subject".

The impression prevails in surgeons and orthopedists that patients suffering from RSD are "psychically peculiar". Sentences currently heard are, "Not everybody is able to develop an RSD", or "I could have sworn this patient would develop RSD". Some papers (6, 8) take into account the psychological aspects of RSD, but deny any predisposition, and more often consider the psychological disturbances as an after effect of RSD. Others are prone to consider a preexisting psychological factor. Bruehl (2) suggests that "RSD patients are more psychologically dysfunctional than other chronic pain patients". Thali (10) found in a series of 10 RSD patients "a neurotic-de-

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pressive structure of personality". Van Houdenhove (11), reviewing 32 RSD patients, assessed that "in nearly all cases of this highly selected group, an obvious time-relation with a significant psychological factor could be determined, and, in more than 60%, some kind of affective loss was concerned". Later on he confirmed "the evidence from psychometric and psychodynamic/biographical studies that suggests a role for such factors" (12). Zucchini (13), testing 12 patients with the MMPI, concluded that "patients suffering from RSD reached higher scores on the depression, hysteria and hypochondria scales". De Vilder (3) with the projective Rorschach test came to similar conclusions.

About the socioprofessional condition, some papers have explored the recent life events of the patients. Geertzen (7) observed that "80% of all dystrophy patients had a recent life-event". Egle (4) obtained a surprisingly uniform result: "in all patients we found that at least one or in most cases several severely stressful events had occurred". Bruehl (1) in a literature review pointed out that "of the 20 articles reviewed, 15 reported the presence of depression, anxiety, and/or of life-stress with RSD". The recruiting is peculiar as well. Eubry (5) noted that among 199 patients suffering from RSD, 73 (37%) had a work-related accident. Moreover, the survey of Nelson (9) revealed "a higher proportion of RSD patients not working ($p < 0.05$) and a higher proportion of RSD patients receiving workman's compensation payments ($p < 0.001$)".

The present study started as a drug-effectiveness survey, and was designed with a standard protocol of inclusion criteria and treatment follow-up. However, as we became aware of the particular circumstances in which the condition arises, we decided to include in the protocol a psychiatric examination and an evaluation of the socioprofessional context. In this report, we shall consider essentially the clinical and epidemiological aspects of posttraumatic RSD.

MATERIAL AND METHODS

Over a period of 12 years, 104 cases of RSD have been diagnosed and treated by the same physician in three different general hospitals. The patients have been followed according to a standard protocol, including age, sex, diagnosis of the primary trauma, time of onset of RSD, means of evaluation of RSD (including clinical signs such as pain, edema, joint stiffness, erythrocyanosis; bone scan; x rays; routine blood tests; and psychiatric examination), socioprofessional condition, means of treatment, time elapsed between the diagnosis of RSD and the relief of pain, and time elapsed between the diagnosis and the healing or onset of the so-called "atrophic" phase. Inclusion criteria required all of the following: all clinical signs positive, evidence of Sudek atrophy on x rays, and positive bone scan. The psychiatric evaluation included a single interview only. Except in a few cases, no psychiatric follow-up was performed.

RESULTS

There were 46 male and 58 female patients. The average age was 51 years (32 to 79 years). There were no children, teenagers or young adults in their twenties.

Table I

		Reflex Sympathetic Dystrophy	
		Moderate	Severe (%)
Minor trauma	97	21	73 (77)
Major trauma	4	2	2 (50)
Orthopedic procedures	6	2	4 (66)
Total	104	25	79

We have arbitrarily classified the primary trauma as minor trauma, major trauma or surgical procedure (table I). In each case, the dystrophy has been classified as moderate or severe (tables II, III, IV).

As can be seen, no significant relationship has been found in trauma cases between the significance of the primary trauma and the severity of the dystrophy. With respect to surgical procedures,

Table II. — Minor trauma (nonoperative treatment)

		Reflex Sympathetic Dystrophy	
		Moderate	Severe
Fractures			
Shoulder	9	4	5
Elbow	2	1	1
Wrist	36	8	28
Hand	12	2	10
Patella	3	–	3
Ankle	2	–	2
Foot	9	2	7
Bruises & Sprains	21	4	17
Total	94	21	73

Table III. — Major trauma

		Reflex Sympathetic Dystrophy	
		Moderate	Severe
Tibial fracture	2	–	2
Femoral fracture	1	1	–
Hand reimplantation	1	1	–
Total	4	2	2

Table IV. — Orthopedic procedures

		Reflex Sympathetic Dystrophy	
		Moderate	Severe
Dupuytren	1	1	–
Carpal tunnel	1	1	–
Meniscectomy	3	–	3
Hallux valgus	1	–	1
Total	6	2	4

some minor ones evolved into RSD. However it is noteworthy that, in the series, no major surgical procedure such as femoral or tibial osteotomy, total hip or knee replacement, surgical treatment of nonunion, etc., led to sympathetic dystrophy.

Although some patients have shown pain and edema in the first weeks following the accident, this has generally been ascribed to the trauma itself or to a tight cast. In 86 cases followed since the primary trauma, the diagnosis of RSD was made in most cases (81) at the time of the primary healing, i.e., for fractures, at the time of removal of the cast or during the following month. In only 5 cases was the diagnosis made later. In 13 cases taken in charge at a later stage, the accurate date of onset of symptoms was not known.

Blood tests revealed no significant disturbances, but, out of 96 patients, 47 (49%) showed isolated elevated γGT, suggestive of alcohol abuse.

Out of 104 patients, 100 agreed to undergo the psychiatric examination. This evaluation revealed that 96 patients out of 100 showed signs of chronic depression.

Table V

Work accidents		38
Jobless people		20
Disabled people		17
Childless housewives		15
Pensioners		11
Executives	*(mental anorexia)*	1
Self-employed people	*(both bankrupt)*	2
Accountants, lawyers, physicians, tradesmen		0
Sportsmen, artists, musicians		0
Housewives with children		0

The study of the socioprofessional context revealed either a state of inactivity (jobless or disabled persons, childless housewives, pensioners) or an opportunity for inactivity (work injury suffered by workers or lower-rank employees, bankrupt self-employed people). There were no tradesmen, consultants, lawyers or physicians. The only executive in the series suffered from anorexia nervosa. There were no housewives taking care of young children, no artists, sportsmen or musicians or even people exercising these activities as a hobby (table V).

RESULTS

During the first period (1984-1990), the treatment included a combination of calcitonin (Miacalcic®, Sandoz, 100 UI per day) and nifedipine (Adalat®, Bayer, 10-20 mg per day) ; in case of failure after 6 weeks, triamcinolone (12 mg per day) ; in case of further failure, ismelin IV block or surgical sympathectomy.

In the second period, i.e. after 1990, we decided to complement the drug therapy by systematically adding antidepressant agents. The most commonly used agents were first generation tricyclic antidepressants including clomipramine (Anafranil®, Ciba, 10-20 mg per day), amitriptyline (Redomex®, Lundbeck, 50 mg per day), or dosulepine (Prothiaden®, Knoll, 50 mg per day). In some cases followed by the psychiatrist, the doses were higher or sometimes a different schedule was prescribed. We noticed that the time necessary for pain relief was drastically shortened. The time to reach healing or, more exactly, the so-called atrophic phase, was also reduced (Table VI). This addition of antidepressant agents obviously led to an important improvement in the course of the disease.

Table VI. — Outcome of treatment

	Mean Time	
1984-1990	Average	Range
(Calcitonin + nifedipine + other treatments)		
Time elapsed for pain relief	3 months	2-6 months
Time elapsed for healing	6 months	3-10 months
1990-1995		
(Calcitonin + nifedipine + antidepressant agents)		
Time elapsed for pain relief	15 days	7-21 days
Time elapsed for healing	2 months	1-3 months

DISCUSSION

This epidemiological survey underscores a number of facts. All patients were more than 30 years old. On psychiatric evaluation, 96% of them showed signs of chronic depression. Half of them showed biological tests suggestive of alcohol abuse. Nearly all patients were inactive, or were lower-rank workers or employees who had an occupational accident with workman's compensation. No relationship was found between the severity of the primary trauma and the severity of the dystrophy, and no major orthopedic procedure has led to dystrophy. Diagnosis of RSD has nearly always occurred at the time of primary healing of the trauma.

The treatment was greatly improved by adding the prescription of antidepressant agents. The question remains whether this improvement can be ascribed to a central antidepressant action or to the well-known effect of these drugs on the peripheral neurological pain.

Many of these elements suggest a strong relationship between the psychological condition and the physical symptoms, and have led us to consider whether RSD could be a psychosomatic disease. Of course, this epidemiological survey was not a psychiatric survey. But we do hope that, in the years to come, a thorough prospective study will be carried out on the psychological aspects of RSD.

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SAMENVATTING

A. RAUÏS. Psychologische aspecten bij 104 gevallen van posttraumatisch RSD.

Gedurende een periode van 12 jaar, werden 104 gevallen van posttraumatic Reflex Sympathetic Dystrophy gediagnostiseerd, behandeld en opgevolgd volgens een standaard protocol en, naast andere parameters, een psyschiatrisch onderzoek inhoudend.
Onafhankelijk van de traditionele klinische vaststellingen, werd het volgende opgemerkt :

1. Alle patiënten waren meer dan 30 jaar oud ;
2. Geen enkel verband werd gevonden tussen het belang van het trauma en de ernst van de dystrophie ;
3. De dystrophie kwam bijna altijd aan het licht op het ogenblik van de primaire genezing van het letsel ;
4. Ter gelegenheid van het psychiatrisch onderzoek vertoonden 96% van de patiënten tekenen van chronische depressie ;
5. 49% vertoonden een stijging van gamma GT die een alcohol gebruik suggereren ;
6. De socioprofessionele context heeft altijd aangetoond :
   - een toestand van inactiviteit (werklozen, invaliden, huisvrouwen zonder kinderen, gepensioneerden) ;
   - een opportuniteit voor inactiviteit (arbeidsongevallen bij arbeiders of ondergeschikte bedienden, zelfstandigen in faling). Deze reeks bevatte geen handelaars, kaders, advokaten, geneesheren, artiesten, sportlui of musici, noch huisvrouwen met jonge kinderen ;
7. Tijdens de tweede fase van het onderzoek hebben we besloten de medicamenten therapie aan te vullen met systematisch antidepressiva.

Dit heeft tot een belangrijk verbetering van de evolutie van de patienten geleid. Deze elementen hebben ons aangezet tot de vraagstelling of algodystrophie een psychosomathische ziekte zou zijn ?

RÉSUMÉ

A. RAUÏS. Aspects psychologiques dans une série de 104 cas d'algodystrophie.

Sur une période de 12 ans, 104 cas d'algodystrophie post-traumatique ont été diagnostiqués, traités et suivis selon un protocole standard incluant, entre autres éléments, un examen psychiatrique. Indépendamment des constatations cliniques traditionnelles, nous avons relevé les faits suivants :

1. Tous les patients étaient âgés de plus de 30 ans ;
2. Aucune corrélation n'est apparue entre l'importance du traumatisme et la gravité de l'algodystrophie ;
3. L'algodystrophie est quasi toujours apparue au moment de la guérison primaire de la lésion ;
4. A l'examen psychiatrique, 96% des patients présentaient des signes de dépression chronique ;
5. Quarante-neuf pour cent présentaient une élévation isolée des gamma-GT, suggérant un abus d'alcool ;
6. Le contexte socio-professionnel a toujours montré :
   - soit un état d'inactivité (chômeurs, invalides, ménagères sans enfant, pensionnés) ;
   - soit une opportunité d'inactivité (accidents de travail chez des ouvriers ou employés subalternes ou indépendants en faillite). Il n'y avait, dans notre série, pas de commerçant, cadre, avocat, médecin, artiste, sportif ou musicien, ni de ménagère s'occupant de jeunes enfants.
7. Dans la deuxième partie de l'étude, nous avons décidé d'ajouter au traitement médicamenteux, des agents antidépresseurs, ce qui eut un effet favorable sur l'évolution de l'affection.

Ces éléments nous conduisent à l'interrogation suivante : l'algodystrophie serait-elle une maladie psychosomatique ?