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Research Article

Psychiatric Disorders, Stress Reaction and Fibromyalgia Syndrome (FMS): Report of an Experience on 48 Patients

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Abstract

Aim: The presence of psychiatric disorders and of alterations of stress reaction has been investigated in patients affected by Fibromyalgia Syndrome (FMS).

Methods: A number of 48 FMS patients and of 41 control subjects underwent a complete clinical evaluation, to psychometric tests (Zung test for Anxiety Disorder –Self Anxiety Scale, SAS- and Depressive Disorder –Self Depression Scale, SDS-, the Middlesex Hospital Questionnaire –MHQ-, Toronto Alexithymia Scale of Taylor -TAS-20-) for psychiatric disorders and alexithymia and to psychophysiological evaluation of response to stress.

Results: Patients with FMS resulted to be significantly positive for depressive disorder, anxiety disorder, obsession and somatization and alexithymia as well. Furthermore, a relevant psycho physiological profile has been identified as an abnormal activation of the stress reaction.

Conclusion: FMF is a multifactorial disease in which the role of psychiatric disorders and of the altered reaction to stress seems to play a crucial role in the pathophysiological of the disease.

Keywords: Psychiatric disorder; Stress reaction; Fibromyalgia syndrome

Introduction

Fibromyalgia Syndrome (FMS) is a disease clinically characterized by the presence of a complex set of symptoms whose most frequent expressions are widespread musculoskeletal pain, with significant involvement of tendons and ligaments, presence of algogenic points or "tender points" localized in specific skeletal muscles and tendon sites, easy fatigability, weakness, functional impairment, sleep disorders [1-4].

FMS patients also commonly present a range of functional disturbances which may include nocturnal cramps, stiffness or encumbrance upon awakening, parenthesis, intolerance to cold and excessive heat, sensation of imbalance, concentrating difficulty, feelings of confusion, vision "floe", absence of responsiveness of pain to analgesic therapy, sensitivity to changes in weather and seasons, "pain perceived as being different" than previous algic experiences, memory alterations, a specific chest pain, fluctuations in body weight.

These symptoms are combined with each other to varying degrees as well as with numerous diseases, often wrongly considered additional symptoms, such as primitive headache (migraine and tension headache), generalized anxiety disorder with panic attacks, Irritable Bowel Syndrome, the dyspeptic syndrome, Obesity, Depressive Disorder, Hepatitis HBV / HCV-related [5,6].

Its prevalence ranges between 0.72 and 5.3% with higher rates in the age groups between 25 to 35 years and 45 to 55 years, even if a juvenile form is reported in the age between 10 and 15 years [7,8].

The pathophysiological of the disorder is not yet fully known and several assumptions have been made: presence of psychological trauma in children [9], the conditions of life particularly stressful [10], the alteration of the hypothalamic-pituitary-adrenal axis, the impairment of neuro-modulation system of pain, the increased sympathetic tone with a reduction of parasympathetic tone and a possible deficiency of tryptophan and then serotonin [11-13]. Moreover, the high recurrence of familiarity suggested the hypothesis of an important role of genetic factors, mainly of genetic polymorphisms related to the serotonergic system, dopamine system and catecholamine [14,15].

Because of uncertainty in pathophysiology, the FMS is nosographycally placed both within the Extra-particular rheumatism and in Dysfunctional syndromes or stress-related and affectivity disorders spectrum.

The diagnostic approach is based on the 1990 criteria of the American College of Rheumatology [13] recently underwent to a modification, which combines the results of a symptom severity scale and of the Widespread Pain Index (WPI), a measure of the number of painful body regions [16]. This clinical case definition of fibromyalgia correctly classifies 88.1% of cACR-1990 (pain in the 4 quadrants of the body and the axial skeleton since at least 3 months and pain in at least 11 of the 18 specific tender points).

The therapeutic approach has been characterized by the use of analgesic drugs (NSAIDs), muscle relaxants, anti-depressants, tricyclic and serotonin re-uptake inhibitors, benzodiazepines, antiepileptic (pregabalin), opiates, non-pharmacological approaches such as physiotherapy, massage therapy, aerobic physical activity, stretching, cognitive-behavioral approach and surgical procedures such as sympathetic blockade, with partial results or at least not entirely satisfactory [17-26].

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In order to gain further insights into the relation among symptoms of FMS and affective and stress disorders, we have evaluated in patients with FMS the presence of psychiatric disorders and the way of stress reaction in response to stressful events.

Patients and Methods

We studied 48 patients, including 45 females and 3 males (age range 39 to 58 years), affected by FMS on the basis of the ACR-1990 criteria (that at the moment still represent the international standard for the diagnosis of the disease), and consecutively admitted to our internal medicine unit in the late three years. All patients underwent to a complete assessment including clinical evaluation, biological (blood count with formula, glucose, blood urea nitrogen, total cholesterol, HDL, ESR, CRP, ANA, CPK, transaminases, TSH, FT4, anti-HBV and anti-HCV) and instrumental exams (ECG, chest X-ray, ultrasound examination of upper abdomen).

Each patient underwent a psychological study by means of Zung test for Anxiety Disorder (Self-rating Anxiety Scale, SAS) and Depressive Disorder (Self-rating Depression Scale, SDS), the Middlesex Hospital Questionnaire (MHQ) for the evaluation of different psychiatric disorders, the Toronto Alexithymia Scale of Taylor (TAS-20) for the assessment of alexithymia.

The stress reaction was evaluated by SATEM-Biolab PT104 SC with use of 4 stressors, 2 physical and 2 psychics, monitoring of variables EMG- contraction of the frontal muscle, SCL-conductivity of skin, THP-peripheral temperature, HR-heart rate for assessing the reaction of Stress and the Visual Analogue Scale (VAS) for the assessment of intensity of pain. This device is currently used for the evaluation of psychophisiological response to different stimuli as expression of the condition of patient stress.

A psychosomatic interview was proposed in all cases and was aimed to the identification of possible etiopathological factors.

41 subjects, including 35 females and 6 males, aged between 35 and 60 years old, free from disease, constituted the control-group.

Count and percentages for qualitative variables, were used to characterize the study cases. Differences between proportions were tested by z-test comparison of proportions and Fisher correction for small numbers. The power of the test and the size of the sample were calculated considering a difference in the expected values of proportions ranging among 0,40 and 0,50 and a desired alpha level equal to 0,05. Results were considered significant when P was <0.05.

Calculations were performed with the NCSS 2009 statistical software (Kaysville, UT, USA).

An informed consent has been obtained from each patient enclosed in the study for the utilization for scientific purposes of relative clinical data. Each procedure followed in the study was in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2000 and 2008. For this purpose, the approval of the local Ethical Committee was purchased.

Table 1: Psychometric evaluation results in Fibromyalgia Syndrome and in control subjects: comparison among proportions of positive results (%) on the basis of the score of each test.

	Patients with Fibromyalgia Syndrome (n=48)	Control subjects (n=41)	*p*
SAS test (anxiety)	57,1	12,4	*.00001*
SDS test (depression)	39,3	7,3	*.0004*
MHQ test			
- anxiety disorder	63	16,5	*.00001*
- depressive disorder	37,5	9,6	*.005*
- obsession	55,3	7,3	*.00001*
- somatization	71,4	15,6	*.00001*
TAS 20 (Alexithymia)	31,5	4,8	*.003*

Results

Our data showed the epidemiological prevalence of females (94.77%) compared to that of males (5.23%).

The use of the ACR-1990 for the diagnosis of SFP showed positivity from 13 to 18 of the tender points considered.

The blood-chemical and instrumental examinations were normal and no significant difference was evident from the comparison with the control group.

Psychometric evaluation revealed (Table 1) that SAS and SDS test were significantly more positive in the FMS group as well as each section of the MHQ test (depressive disorder, anxiety disorder, obsession and somatization). Alexithymia as well was higher in the FMS group.

The study of psycho physiological profile showed positivity for all 4 variables studied (high value increase) in 76.2% of patients, and 2 of them (EMG-SCL) in 23.8%. In the control group there was evidence of a slight positivity of EMG variable and of the variable HR in 21.9% of subjects (p <0.005).

The use of the VAS showed the presence of pain of intensity comprised between 8 and 10 cm and the absence of pain in the control group. It is noteworthy that in patients with FMS we revealed the concomitant presence of migraine with and without aura in 43% cases, chronic tensile headache in 74.6% of cases and a condition of abuse drugs (NSAID) in 26.7% of them.

The psychosomatic Interview showed the presence of a teenage-parental relationship considered as "not satisfactory" in 61.7% of patients and numerous stressful events (loss-events) related to the family, labor and social environment (death of a parent –loss of job, serious economic problems, need to work commitment in pre-adolescent or adolescent age) in 65.6% of them against, respectively, 7.5%(p .00001) and 4.8% (p .00001) of subjects in the control group.

Discussion

Our data confirm the significant presence of psychiatric disturbances in patients affected by FMS.

Among these, in agreement to previous data [5,9,10], an emergent role has to be paid to the somatizated Anxiety Disorder, to Depressive Disorder and to alexithymia.

Even recently, the relevance of psychiatric disorders in the FMS has been underlined: women with fibromyalgia, in fact, reported

higher depression scores, greater perceived distress and more frequent unsupportive relationships than healthy women and patients with an autoimmune disorder [27].

Furthermore, the presence of alexithimia, that in our series has reached the lower level of statistical significance between the two study groups, is considered a matter of discussion in the recent literature: Di Tella and Castelli [28] in a complete review on this argument, concluded that the majority of findings have highlighted the high prevalence of alexithymia in FM patients but that further studies need to be planned to clarify the role of alexithymia in FM with the use of scales other than TAS-20.

Moreover, in our series of patients with FMS, a relevant psycho physiological profile is represented by an abnormal activation of the stress reaction that to our knowledge has not been ever evaluated through the study of psycho phisiological variables response. In our experience, the mode of response to stressful events has been characterized by an extension in time, that configures the pathological condition of "chronic stress", that has been frequently considered crucial in the interpretation of many internal medicine disorders [29].

This data, in addition to the peculiar clinical evolution way of FMS, chronic without detection of organic lesion of the skeletal muscles or tendons, seems to suggest a more suitable nosographic placement of the disease among the dysfunctional stress-related syndromes.

On the basis of these observations, the FMS can be considered as the clinical expression of the synergy of factors such as genetic, emotional, cultural, personality traits, and of the altered answer to stressful events (chronic activation of the hypothalamic-pituitary-adrenal axis with chronic elevation of cortisol and adrenaline and consequent inhibitory effect on endorphins) [11-13]. The synergistic effect of all these factors could lead to a dysregulation of the central mechanisms of pain (anti-nociceptive system) with increase (hyperalgesia-allodynia) and its gradual spread (panalgesia).

Moreover, it is striking how the significant co morbidity with other disorders such as migraine with and without aura, episodic tension-type headache, Irritable Bowel Syndrome, dyspeptic syndrome, the Chronic Daily Headache, Obesity, permits to place the FMS, considered as part of "complex diseases" in the context of Internal Medicine, that is widely considered the "Medicine of Complexity" [30]. Therefore, a multidisciplinary approach to the FMS may be proposed as a more effective approach to the disease.

Finally, it must be stressed that the absence of organic lesions should not induce in any way to minimize the importance of this disease that can adversely affect the quality of life of patients and is burdened with a significant risk of suicide [31,32].

In conclusion, FMF is a multifactorial disease in which the role of psychiatric disorders and of the altered reaction to stress seems to play a crucial role in the pathophysiology of the disease. The relevant role of co morbidities and the need to use a multidisciplinary approach to such a complex disease make the FMS an interesting model for the internal medicine methodology in the solution of health problems.

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