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Posttraumatic stress disorder in fibromyalgia syndrome: Prevalence, temporal relationship between posttraumatic stress and fibromyalgia symptoms, and impact on clinical outcome

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ABSTRACT

A link between fibromyalgia syndrome (FMS) and posttraumatic stress disorder (PTSD) has been suggested because both conditions share some similar symptoms. The temporal relationships between traumatic experiences and the onset of PTSD and FMS symptoms have not been studied until now. All consecutive FMS patients in 8 study centres of different specialties were assessed from February 1 to July 31, 2012. Data on duration of chronic widespread pain (CWP) were based on patients' self-reports. Potential traumatic experiences and year of most burdensome traumatic experience were assessed by the trauma list of the Munich Composite International Diagnostic Interview. PTSD was diagnosed according to the *Diagnostic and Statistical Manual of Mental Disorders IV* symptom criteria by the Posttraumatic Diagnostic Scale. Age- and sex-matched persons of a general population sample were selected for controls. Three hundred ninety-five of 529 patients screened for eligibility were analysed (93.9% women, mean age 52.3 years, mean duration since chronic widespread pain 12.8 years); 45.3% of FMS patients and 3.0% of population controls met the criteria for PTSD. Most burdensome traumatic experience and PTSD symptoms antedated the onset of CWP in 66.5% of patients. In 29.5% of patients, most burdensome traumatic experience and PTSD symptoms followed the onset of CWP. In 4.0% of patients' most burdensome traumatic experience, PTSD and FMS symptoms occurred in the same year. FMS and PTSD are linked in several ways: PTSD is a potential risk factor of FMS and vice versa. FMS and PTSD are comorbid conditions because they are associated with common antecedent traumatic experiences.

1. Introduction

Chronic widespread pain (CWP), fatigue, and sleep problems are major, and additional somatic and psychological symptoms are minor diagnostic criteria of fibromyalgia syndrome (FMS), according to the preliminary 2010 diagnostic criteria of the American College of Rheumatology (ACR) [40]. FMS symptoms are associated with varying grades of disability [13]. The prevalence of FMS, according to the modified diagnostic ACR 2010 criteria, in the general German population was 2.1% [38].

A biopsychosocial model of interacting variables in the predisposition, triggering, and perpetuating of FMS has been suggested [33]. Among psychosocial variables, major negative life events

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and traumatic experiences may play a role in the predisposition to FMS. Major life events and traumatic experiences have been more frequently reported by FMS patients than by controls in clinical as well as in population samples. Sexual and physical abuse in childhood and adulthood were associated with FMS in adulthood [18,25]. The association of FMS with traumatic experiences is mediated by posttraumatic stress disorder (PTSD) [4]. The prevalence rates of PTSD in FMS patients range from 15% to 56% [10]. In FMS patients with PTSD, sudden unexpected death of a close relative or friend and diagnosis of life-threatening illness, but not physical and sexual violence, were reported to be the most frequent traumatic experiences [5]. Furthermore, a negative effect of PTSD symptoms on the severity of FMS symptoms has been reported by 2 studies [7,32].

Although the association between FMS and PTSD is well established, the temporal relationships between traumatic events and FMS and PTSD symptoms remain unclear. The following hypotheses have been suggested: (1) PTSD is a risk factor of FMS [3,27]; (2) FMS is a risk factor of PTSD [27,31]; (3) FMS and PTSD are comorbid conditions because of an association with a common antecedent factor (trauma) [27]; (4) The relationship between PTSD and FMS is mediated by a third factor, for example, depression [13,27].

Data on the temporal relationships of traumatic events and the onset of FMS and PTSD symptoms could help to test the hypotheses above. The first hypothesis would be supported if traumatic events and PTSD symptoms would predate CWP. The second hypothesis would be supported if CWP would predate traumatic events and PTSD symptoms. The third hypothesis would be supported if both FMS and PTSD symptoms would occur within the same time interval after a traumatic experience. However, data on temporal relationships of traumatic events, PTSD, and FMS symptoms have not been reported by previous studies. The aims of the study therefore were to assess in FMS patients:

(1) The prevalence and types of (potential) traumatic events and of PTSD compared to controls,
(2) the temporal relationships of traumatic events, PTSD, and FMS symptoms, and
(3) the impact of PTSD on FMS outcome.

2. Methods

2.1. Subjects

2.1.1. FMS patients

All consecutive FMS patients of 8 study centres (3 psychosomatic and pain medicine, 2 rheumatology, 1 orthopaedic surgery, 1 physical therapy, 1 complementary medicine) were screened for eligibility for study participation from February 1 to July 31, 2012. The levels of care of the study centres were as follows: 3 hospital outpatient departments (1 hospital of secondary and 2 hospitals of tertiary care); 3 inpatient departments (2 rehabilitation clinic, 1 acute care hospital); and 2 medical practices.

All consecutive patients with an established or first diagnosis of FMS of the participating study centres were asked by the physicians of these centres to take part in the study. Patients were included if the diagnosis of FMS had been established in the past or recently by one of the study physicians who were all experienced in the management of FMS patients. Because there is no gold standard of FMS case identification [13], FMS could be diagnosed by the ACR 1990 classification criteria [42], by the modified ACR 2010 diagnostic criteria [37], or by the criteria of the Association of the Medical and Scientific Societies in Germany [16]. Patients were excluded in case of somatic diseases, sufficiently explaining the majority of pain sites, who were not able to speak and read German language or were mentally handicapped. There were no other exclusion criteria.

The questionnaires were handed out by the physicians of the centres with a standardized letter explaining the focus of the study. The questionnaires were returned by the patients in a closed and anonymous envelope and kept away from the charts in a closed box. The anonymous questionnaires were sent to the study centre at the end of the study.

2.1.2. General population controls

A representative sample of the German general population was selected with the assistance of a demographic consulting company (USUMA, Berlin, Germany). The random selection was based on multistage sampling with 3 stages (according to the typical random selection procedure in national surveys in Germany). First, 258 sample point regions were randomly drawn from the last political election register, covering rural and urban areas from all regions in Germany. The second stage was a random selection of households using the random route procedure (based on a starting address). The third stage was a random selection of household respondents with the Kish selection grid. The sample was aimed to be representative in terms of age, gender, and education for the general German population. The inclusion criteria for the study were age at or above 14 years and the ability to read and understand the German language. All participants were informed about the study procedures and signed an informed consent form. In minors, the informed consent was obtained by the parents.

All subjects were visited by a study assistant and informed about the investigation. Self-rating questionnaires were presented. The subjects were instructed that several rating scales would follow without informing about the special topics of the study. The set of questionnaires included a wide range of topics other than pain and potential traumatic events, such as crying, envy, political beliefs, or adult attention deficiency hyperactivity symptoms. Thereafter, subjects completed the rating scales detailed below. The assistant waited until participants answered all questionnaires, and offered help if persons did not understand the meaning of questions.

Data collection took place between May and June 2007. A first attempt was made for 4205 addresses, of which 4055 were valid. If not at home, a maximum of 3 attempts were made to contact the selected person. The initial sample consisted of 4055 subjects, of whom 2510 (61.9%) fully participated. Reasons for dropout included the following: 3 unsuccessful attempts to contact the household or selected household member (9.7%); the household or selected household member disagreed to participate (13.8%); the household member was on a holiday break (1.6%). Furthermore 0.5% of the participants were excluded because they were not able to follow the interview because of illness; 8.6% refused to finish the interview [12]. Three hundred ninety-five randomly selected age- and sex-matched persons of a general population sample were used to establish a control group.

2.2. Measures and questionnaires

By a self-constructed *demographic and medical questionnaire*, data on marital status, educational status, lifetime and current professional status, and in FMS patients, on duration of CWP and time since FMS diagnosis, were assessed.

The Fibromyalgia Survey Questionnaire (FSQ), which includes the fibromyalgia criteria and severity scales for clinical and epidemiological studies [39], was used to assess the modified ACR 2010 diagnostic criteria and symptom severity (polysymptomatic distress) [40]. We used the validated German version of the FSQ [17].

Corresponding to the *trauma list of the PTSD module* [26] of the Munich Composite International Diagnostic Interview [37], 10