

Research Article

Frequency of Posttraumatic Stress Disorder in Patients with Cervical Sprain

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Abstract

Background: Posttraumatic Stress Disorder (PTSD) arises as a late response to a stressful event or situation of an exceptionally threatening or catastrophic nature; it presents with significant deterioration of social, school, work and personal functioning. The symptoms of posttraumatic stress disorder have been associated with pain intensity and poor response to treatment after cervical injury.

Aim: The purpose of this study is to determine the frequency of posttraumatic stress disorder in patients with cervical sprain in Tijuana, Mexico.

Design and Setting: Descriptive cross-sectional study.

Methods: In 81 patients in the Family Medicine Unit #27, Tijuana, Mexico; a descriptive cross-sectional study was conducted in patients with cervical sprain in order to determine the frequency of posttraumatic stress disorder from September to December 2018. We obtained general data such as age, sex, schooling, occupation, weight, height, body mass index, mechanism of production of cervical sprain, severity of sprain, treatment received and the presence of posttraumatic stress disorder. For statistical analysis, we applied descriptive statistics; for qualitative variables frequencies and percentages were used and for quantitative variables mean and standard deviation were used.

Results: In posttraumatic stress disorder (PTSD), 18.5% (n=15) of the 81 patients presented the disease according to DSM-V criteria; the symptoms of increased activation and psychophysiological reactivity together with symptoms of re-experimentation/increased activation and electrophysiological reactivity occurred more frequently with 7 and 7 cases (8.6%) respectively.

Conclusion: Of the 81 patients, 15 patients with post-traumatic stress disorder were identified and four of them presented poor response to treatment. With our study new lines of research on posttraumatic stress disorder and its influence on diseases secondary to accidents or acute injuries are opened, it is important to remember this disease when evaluating patients with musculoskeletal injuries produced by a stressful event.

Keywords: Posttraumatic Stress Disorder; Cervical Sprain; DSM-V

Introduction

Posttraumatic Stress Disorder (PTSD) arises as a late response to a stressful event or situation of an exceptionally threatening or catastrophic nature; it presents with significant deterioration of social, school, work and personal functioning; PTSD develops after exposure to a threatening stressor in which the event is remembered, which may last for many weeks or months after the trauma [1]. The diagnostic criteria for PTSD in the DSM-V are divided into four categories of symptoms: 1) re-experimentation, 2) behavioral-cognitive avoidance, 3) cognitive alterations, negative mood and 4) increased activation and psychophysiological reactivity [2]. The prevalence of Posttraumatic Stress Disorder varies according to the region of the world. In the Spanish population over 18 years of age, there is a prevalence of 1.95%; in the United States between 3.6% and 7.8% and in other parts of the world from 2.2% to 4.6% [3].

The cervical sprain is the result of a combined injury between

extension-flexion of the tissues of the cervical spine, mainly due to traffic accidents. It is a very common cause of consultation in the first level of attention taking into account that worldwide 300 people per 100,000 suffer cervical sprain. In Mexico, at the beginning of this millennium, social security reported more than 15 thousand cases of work accidents associated with dislocations, tears and neck sprains. Because the incidence and prevalence of cervical sprain is high, and because there is no consensus on treatment techniques and methods, patients often present poor response to treatment or partial recovery. Approximately 20% of those affected will be cured in a week, 50% will be in one month, 70% in 6 months and 80% in two years [4]. The degree of severity of the cervical sprain is evaluated with the classification of Quebec, it is classified as: grade 1, neck pain and stiffness; grade 2, neck pain and musculoskeletal symptoms; grade 3, neck pain and neurological symptoms and grade 4, neck pain and fracture or dislocation [5].

The main etiology of the cervical sprain are car accidents, falls and

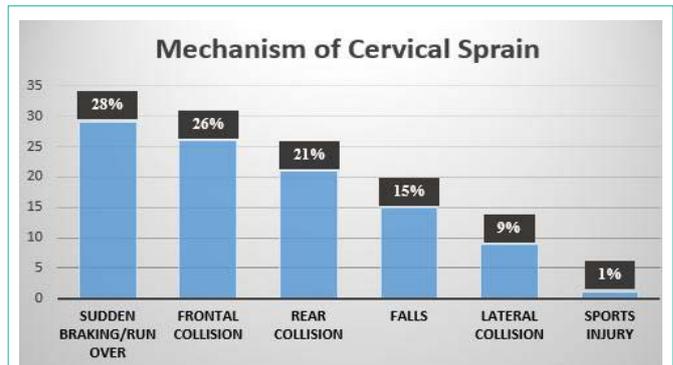
sports injuries. Neck pain is generated immediately after the accident and may increase in the next two days after the event. Emotional instability occurs in 44% of cases with grade 1, in 20% with grade 2 and in 16% with grade 3 [4]. The symptoms of posttraumatic stress disorder have been associated with pain intensity and poor response to treatment after cervical injury [6]. The most common symptoms are pain, stiff neck, headache, dizziness, paresthesia, pain in arms, difficulty sleeping, concentration problems and fatigue [7]. More than a third of patients who have a whiplash lesion develop central sensitization, defined as amplification of the neural signal within the central nervous system that triggers hypersensitivity to pain. It is considered chronic if it lasts for 3 to 6 months [8].

Treatments include physical therapy, exercise, counseling, recognition of anxiety and psychological problems. For the acute cervical sprain (0-12 weeks) the stretching exercises of the neck and shoulder muscles are more effective than the immobilization with collar or rest. The recommended treatments for chronic cervical sprain (greater than 12 weeks) are active exercise in combination with neck and shoulder muscle stretches, stretching for deep neck flexors, passive mobilization of the joint, vestibular rehabilitation and multimodal therapy [9]. In the treatment of posttraumatic stress disorder cognitive behavioral therapies, therapies focused on the regulation of emotion and psychodynamic therapies are included. These can be individual, group, family or marriage. Cognitive behavioral therapy is more efficient [10]. The lack of response to treatment is characterized by 1) not giving up pain with treatment, 2) not improve with treatment and 4) poor response to multiple treatments [11]. Based on the above, the main objective of the study is to determine the frequency of posttraumatic stress disorder in patients with cervical sprain in Tijuana, Mexico.

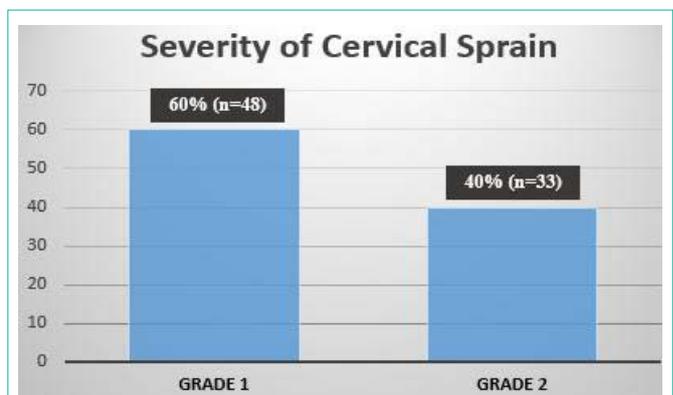
Materials and Methods

A descriptive cross-sectional study was carried out, in the Family Medicine Unit #27, of the Instituto Mexicano del Seguro Social (IMSS), located in Tijuana, Mexico; in patients which were selected by a consecutive sampling techniques; that met the following inclusion criteria: age between 18-60 years, with cervical sprain grade 1 or 2, that accepted and signed the informed consent; patients with history of fracture, cervical dislocation, chronic cervicgia and rheumatological diseases were excluded and patients with incomplete information were eliminated. The following data were obtained directly from patients or medical records: age, sex, weight, height, body mass index, schooling, occupation, mechanism of production of cervical sprain, severity of sprain, treatment received and the presence of posttraumatic stress disorder.

The procedure for the data collection was as follows: age was calculated in years according to the year of birth; sex was determined by the phenotype characteristics of each individual; occupation and schooling was determined by asking directly to patients; weight and height was calculated on a scale with stadiometer (Transcell technology model TI-540-SL); BMI was calculated based on the Quetelet index ($BMI = \text{weight}/\text{height}^2$); mechanism of production of cervical sprain was classified according to the etiology of injury; severity of sprain was classified according to Quebec classification; treatment received was collected from the medical record and the presence of posttraumatic stress disorder was evaluated according



Graphic 1: Mechanism of production of cervical sprain.

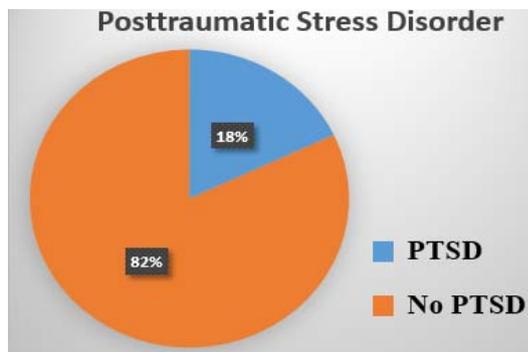


Graphic 2: Severity of sprain according to Quebec classification.

to DSM-V criteria, it is a scale structured in a Likert format of 0-3 according to the frequency and intensity of the symptoms; it has 21 items in correspondence with the diagnostic criteria of the DSM-V; 5 items are focused on the symptoms of re-experimentation (range of 0-15 points), 3 items on behavioral-cognitive avoidance (range of 0-9 points), 7 items on cognitive alterations and negative mood (range of 0-21 points)) and 6 items on symptoms of increased activation and psychophysiological reactivity (range of 0-18 points). It is considered a present symptom when it is scored, at least, with two points in the corresponding item. The range of the global scale is 0-63 points. The recollected data was integrated into data collection sheets and analyzed using the SPSS program version 20 in Spanish, where we applied descriptive statistics; for qualitative variables, frequencies and percentages were used and for quantitative variables, mean and standard deviation were used. The Kolmogorov-Smirnoff test was used to establish the normality of the data. The Protocol was authorized by the Local Committee of Research and Ethics in Health Research.

Results

We analyzed a sample of 81 patients in the period between September to December 2018; the majority of the patients in the study were in the age group of 41-45 years (18.5%); 76.5% (n=62) were women and 23.5 (n=19) men. The most frequent schooling was bachelor's degree (n=30, 37%); in occupation, 60.5% (n=49) were workers, 22.2% (n=18) professionals, 12.3% (n=10) unemployed, 3.7% (n=3) students and one patient was classified in another occupation. In the nutritional status (body mass index), 21 patients



Graphic 3: Frequency of Posttraumatic Stress Disorder.

had normal weight, 28 overweight, 20 obesity grade 1, 10 obesity grade 2 and two obesity grade 3. The main causes of cervical sprain reported were (graphic 1): 28.4% (n=23) mechanisms such as sudden braking of personnel transport, neck shaking caused by fights and running over public roads; the second mechanism of production was by automobile accident type frontal collision with 25.9% (n=21) and rear collision 21% (n=17). The cervical sprain caused by falls was 14.8% and by car accident by lateral collision 8.6%; only one case of sports injury was reported.

The degree of severity of cervical sprain according to the Quebec classification (graphic 2) that reported the most frequency was grade 1 with 48 cases (59.3%) and grade 2 with 33 cases (40.7%). The treatment for cervical sprain most frequently was pharmacological medication plus rehabilitation with 76.5%. In posttraumatic stress disorder (PTSD), 18.5% (n=15) of the 81 patients presented the disease according to DSM-V criteria (graphic 3); the symptoms of increased activation and psychophysiological reactivity together with symptoms of reexperimentation/increased activation and electrophysiological reactivity occurred more frequently with 7 and 7 cases (8.6%) respectively. Of 15 (100%) patients who had PTSD, 7 (46.6%) had grade 1 and 8 (53.3%) grade 2 cervical sprain. The main mechanism of sprain production in patients with PTSD was by automobile accident type rear collision with 5 cases (33.3%) and frontal collision with 4 cases (26.6%). The most frequent schooling in patients with PTSD was high school with 6 cases (40%). The most frequent occupation in patients with PTSD was workers with 9 cases (60%). Of the 81 patients interviewed, 14 (17.3%) presented a poor response to treatment and of these only four presented PTSD.

Discussion and Conclusion

A person faces various harmful stimuli that can be experienced as catastrophic, these cause an excessive level of stress and become traumatic events, which are not easy to overcome and therefore have negative effects on physical and mental well-being. Stress is a process in which the demands of the environment exceed the individual's capacity for adaptation, causing psychological and biological changes that increase the risk of becoming ill. It is estimated that 50%-90% of the population has been exposed to traumatic events at some time in their life. However, many of the exposed subjects do not develop posttraumatic stress disorder. Those who develop it have a higher prevalence of a history of sexual violence, physical violence or events related to natural disasters. Cervical lesions may have similar

symptoms to other more serious pathologies such as fracture of cervical vertebrae, cervical disc herniation, radiculopathy, subarachnoid hemorrhage or meningitis. The most accepted treatments for cervical sprains include reducing pain with pharmacological treatment, increasing the patient's physical activity and handling loads gradually.

Of the 81 patients, 15 patients with post-traumatic stress disorder were identified and four of them presented poor response to treatment. The revised symptom severity scale was used to determine the presence of posttraumatic stress disorder according to the diagnostic criteria of DSM-V in patients with grade 1 and 2 cervical sprain. For the treatment of patients with this pathology, a detailed psychological evaluation should be considered in order to identify symptoms such as reexperimentation, cognitive behavioral avoidance and increased psychophysiological activation and reactivity. It is important to consider that psychological treatment consists of a series of therapeutic strategies that require training for its application. It is considered that behavioral therapy is the strategy that has proven to be most effective in reducing symptomatology and preventing recurrence. The programs in which cognitive behavioral therapy is incorporated are classified into three groups: focused on trauma, focused on stress and group therapy. With our study new lines of research on posttraumatic stress disorder and its influence on diseases secondary to accidents or acute injuries are opened, it is important to remember this disease when evaluating patients with musculoskeletal injuries produced by a stressful event.

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