Short Communication

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Prevalence of Musculoskeletal Pains and the Demographic Factors Related to the Pain Locations in Patients with Chronic Trauma

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ABSTRACT

BACKGROUND AND OBJECTIVE: Chronic trauma can be a risk factor for most of the musculoskeletal disorders. Also, identifying the related factors can help to control it better. Therefore, this study aimed to evaluate the prevalence of chronic musculoskeletal pains and the relation between their locations and demographic factors.

METHODS: This cross-sectional study was performed on 1000 traumatic patients who referred to orthopedics clinic of Shahid Beheshti hospital during 2016-2017. Demographic characteristics (age, sex, occupation, education, weight and height) and clinical information of the patients were obtained.

FINDINGS: Of the 1,000 patients referred, 223 (22.3%) had chronic pain. The most common site of pain was the waist (n= 100, 44.8%) and the lowest incidence of pain was in the heel (n=2.9%). The pain in the lower limbs was higher in women (30.9% vs. 16.9%, p=0.006). Chronic trauma of the upper limbs in individuals less than 45 years old (22.4%) was more than those aged 65-45 years (17.1%) and over 65 years old (1.7%) (p= 0.002).). The neck and waist pain in the group of upper the diploma (69.7%) was higher than the diploma (59%) (p= 0.004). Lower limb pain in housewives (34.5%) was higher than employees (18.3%) and those with free or agricultural occupation (18.9%) (p=0.018).

CONCLUSION: According to the results, chronic traumatic pain had a considerable prevalence rate. The most common location of the pain was the low back.

KEY WORDS: *Trauma, Chronic Pain, Musculoskeletal Pain*

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Introduction

In today's machine world, trauma is one of the most important problems that we deal with. Traumatic injury is a harm that is caused by a foreign body or by a person (1, 2). In general, in a type of traumatic injury classification, they categorize in acute and chronic types (3, 4). All non-inflammatory pain of the musculoskeletal system, which lasts more than 3 weeks from the onset, or the repetition of a specific compression or tensile action that causes pain in the musculoskeletal system is considered as a chronic traumatic injury (3, 5).

Recent studies indicate that the incidence and prevalence of lesions from chronic trauma is increasing (6). 11.2% of American young are reported to suffer from chronic pain (7). Also, in a study, the incidence of lumbar pain was reported to be 139 per year per 100,000 people in the country (8). In Europe, chronic pain, especially among workers, has been reported (9). Treatment for mild injuries caused by chronic trauma is through the use of analgesics and physiotherapy. But in more severe cases, the patient undergoes surgery, which, of course, is not guaranteed to improve the pain. Generally, the chance of recovery after treatment in mild injury is more than the severe injury and the cost of treatment is lower (10, 11).

Chronic trauma can be the cause of many diseases affecting the musculoskeletal system, including: tendonitis, carpal tunnel syndrome, external epicondylitis, internal epicondylitis, trigger finger, all mechanical causes of back pain, shoulder, elbow, wrist, neck, thigh, knee, ankle (11, 12).

Considering the increasing prevalence of chronic injury due to trauma and involvement of a large population (in poorly ergonomic conditions) who are unaware of their problem, and considering the physical and financial costs of this preventable syndrome, this study aims to determine the prevalence of chronic trauma and its relationship with different factors in patients referred to Shahid Beheshti Hospital in Babol so that the results of this study can help to prevent and control chronic traumatic pain.

Methods

This cross-sectional study after approval by the Ethics Committee of Babol University of Medical Sciences with code: MUBABOL.REC.1394.316 was done in Shahid Beheshti Hospital of Babol during the years 2016-2017 on all patients referred to orthopedic clinic of Shahid Beheshti Hospital during these years. All patients with non-traumatic problems, such as inflammation or psychosomatic pains, and those with acute trauma, those undergoing surgery, as well as those who had evidence of inflammatory evidence (high ESR and CRP and WBC in the test) were excluded. After clinical examination, in cases where there was no doubt about the psychosomatic pain, comparison of lidocaine and normal saline tests were used. In the event that the pain of the patient decreased by 2-1 cc of lidocaine 2% after local injection, the psychosomatic pain was rejected. Based on patient complaints, the pain region is divided into the neck, shoulder, elbow, wrist, lower back, hip, knee, ankle and leg heel.

Patients referred to the study after being examined by the orthopedic surgeon were provided with explanations and written consent. Chronic trauma was diagnosed by an orthopedic surgeon in the patient according to the above definition (non-inflammatory pain of the musculoskeletal system). Demographic information (age, sex, occupation, education, height and weight) with clinical information on pain and location (neck, shoulder, elbow, wrist, lower back, hip, knee, ankle, heel) in patients was recorded by trained medical students under the supervision of an orthopedic surgeon. Information was collected in a checklist. To evaluate the relationship between different factors and the location of pain, analyzes were performed on patients with chronic pain. The data were analyzed by SPSS software using descriptive and Chi-Square tests. In the tests, the level of significance was less than 0.05.

Results

A total of 1000 patients were evaluated. Of these, 223 (22.3%) suffered from chronic trauma, of which 71 (31.8%) were male and 152 (68.2%) were female. The average age of these 223 people was 54.48±13.83 years

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(the lowest was 22 years and the highest was 89 years). Also, the average body mass index (BMI) was 28.27±4.60 kg / m2 (range 17-41 kg/m2). Table 1 shows feature of 223 patients with chronic traumatic pain.

Table 1. Basic patient information

Variable		Nomber(%)
Age (yaer)	<45	58(26)
	45-65	105(47.1)
	>65	60(26.9)
Gender	man	71(31.8)
	woman	152(68.2)
Education	Under diploma	83(37.2)
	diploma	64(28.7)
	Higher tan diploma	76(34.1)
Occuoatiuon	House wife	111(49.8)
	Free / farmer	52(23.3)
	employee	60(26.9)
BMI (kg/m^2)	≤24.9	57(25.6)
	25-29.9	87(39)
	≥30	79(35.4)

Of the 223 patients with chronic pain complaints, 5 (2.2%) were aware of their pain. The frequency of neck, shoulder, elbow, wrist, waist, hip, knee, ankle and foot heel were 32 (14.3%), 10 (4.5%), 10 (4.5%), 12 (4.5%), 100 (44.8%), 10 (4.5%), 44 (19.7%), 3 (1.3%) and 2 (0.9%), respectively.The pain in the lower limbs was higher in women than in men (16.9% vs. 30.9%), but the pain of upper extremities in men (23.9%) was higher than in women (9.9%). (P=0.006) (Table 2).

Chronic trauma of the upper limbs in patients less than 45 years old (22.4%) was more than those aged 65-45 years (17.1%) and over 65 years old (1.7%) (p=0.002). The neck and waist pain in the group of higher than diploma (69.7%) was more than the diploma (59%) (p=0.004). Lower limb pain in housewives (34.5%) was higher than employees (18.3%) and those with free or farming (18.9%) (p=0.018). In contrast, there was no significant association between patient complaints and their BMI. Table 3 shows the frequency of pain in patients by gender, age, education, occupation and BMI.

Table 2. Relationship between patient complaints in terms of pain region and study variables

Variable		patient complaint			P-value
		Upper extremes* Nomber(%)	Axial** Nomber(%)	Lower extremes*** Nomber(%)	
Gender	man	17(23.9)	42(59.2)	12(16.9)	0.006
	woman	15(9.9)	90(59.2)	47(30.9)	
Age (year)	<45	13(22.4)	37(63.8)	8(13.8)	0.002
	45-65	18(17.1)	54(51.4)	33(31.4)	
	>65	1(1.7)	41(68.3)	18(30)	
Education	Under diploma	6(7.2)	49(59)	28(33.7)	0.004
	diploma	14(21.9)	30(46.9)	20(31.3)	
	Higher than diploma	12(15.8)	53(69.7)	11(14.5)	
Occupation	House wife	11(10)	61(55.5)	38(34.5)	0.018
	Free or farmer	13(24.5)	30(55.6)	10(18.9)	
	employee	8(13.3)	41(68.3)	11(18.3)	
BMI (kg/m^2)	≤24.9	13(22.8)	36(63.2)	8(14)	0.051
	25-29.9	12(13.8)	50(57.5)	25(28.7)	
	≥30	7(8.9)	46(58.2)	26(32.9)	

*** Shoulder, elbow and wrist ** neck and waist *** pelvis, knees, ankles and heels**

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Table 3. Frequency of pain in patients by gender, age, education, occupations

Patient pain region / Variable		Neck N(%)	Shoulder N(%)	Elbow N(%)	Wrist N(%)	Waist N(%)	Pelvis N(%)	Knee N(%)	Ankle N(%)	Heel N(%)
Gender	Man	9(28.1)	2(20)	8(80)	7(58.3)	33(33)	3(30)	8(18.2)	0(0)	1(50)
	Woman	17(53.1)	3(30)	5(50)	5(41.7)	20(20)	1(10)	7(15.9)	0(0)	0(0)
Age	<45	17(53.1)	3(30)	5(50)	5(41.7)	20(20)	1(10)	7(15.9)	0(0)	0(0)
	45-65	8(25)	7(70)	4(40)	7(58.3)	46(46)	6(60)	24(54.6)	2(66.7)	1(50)
	>65	7(21.9)	0(0)	1(10)	0(0)	34(34)	3(30)	13(29.5)	1(33.3)	1(50)
Education	Under the diploma	16(50)	4(40)	1(10)	1(8.3)	33(33)	6(60)	19(43.2)	2(66.7)	1(50)
	Diploma	9(28.1)	3(30)	4(40)	7(58.3)	21(21)	3(30)	15(34.1)	1(33.3)	1(50)
	higher than diploma	7(21.9)	3(30)	5(50)	4(33.4)	46(46)	1(10)	10(22.7)	0(0)	0(0)
Occupations	housewife	9(28.1)	7(70)	1(10)	3(25)	52(52)	5(50)	31(70.4)	2(66.7)	1(50)
	Free/ farmer	7(21.9)	2(20)	5(50)	6(50)	23(23)	3(30)	5(11.4)	0(0)	1(50)
	Employee	16(50)	1(10)	4(40)	3(25)	25(25)	2(20)	8(18.2)	1(33.3)	0(0)

Discussion

The prevalence of chronic traumatic abnormalities in the patients was 22.3%. Also, the highest rate of complaints in patients with chronic traumatic lesions was back pain (44.8%) and then knee pain (19.7%) in the study. In a meta-analysis study by Fayaz et al., conducted on British populations, chronic pain varies between 35% to 51.3%. Also, chronic pain disorders were 14.2%, chronic neuropathic pain was 8.2%, and fibromyalgia 4. 5% (13). A study in Japan on 11,507 people found that 14.9% of the patients had chronic pain. After one year, the incidence of chronic pain was 11.1% (14). In the United States, this was estimated at 40% (15). Kox et al., in a review study in 2015, estimated the incidence of wrist pain in athletes 32-73% and the prevalence of traumatic wrist injury was estimated about 10-28% (16). In the present study, the incidence of wrist pain was less than that estimated in the Kox study. One of the reasons for this difference can be due to the difference in the population of two studies. In another study by Ratzlaff et al., the prevalence of traumatic chronic lesions was 10.9% in 8.2 million people (10). In our study, we found a prevalence of 22.3% on 1000 patients, which was higher than the Ratzlaff study, which is justifiable in comparison with the study population. Lumbar pain has many definitions based on the start time and its duration. Population based studies may define it as a back pain or a history of back pain in the past (17). In the present study, there was a pain of three weeks or more. In the study of Hoy et al., the prevalence of low back pain was reported in 1-58% in different countries (17). In our study, back pain had a high prevalence, and it was also within the range reported by Hoy et al. This defined range for the prevalence of back pain is a reflection of the difference in this population in different societies. As mentioned, there was a significant relationship between the location of chronic pain among people and variables such as age, gender, education, and occupation. In the study of Chiu et al. (18) who reported prevalence of cervical and upper extremities pain of 69.3% and 35.8%, respectively, it was shown that female sex is more likely to be affected than the male. In our study, women also significantly complained of pain in the axial regions (neck and waist), as well as in the lower extremities (pelvis, knee, ankle and heel) than men. Some studies were consistent with the outcome of our study (19, 20), and some also had similar levels of pain in men and women (21), which were different from our findings. One of the possible reasons for justifying the incidence of more pain in

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women is that women are more likely to face job and livelihood stress than men (22, 23). In relation to age, most studies report its direct relationship as a risk factor for chronic pain in the body, including the neck, waist and limbs (24-26). It seems that with increasing age, due to reduced tissue repair, degeneration of the musculoskeletal system and reduction of the thickness of articular cartilage, increased chronic traumatic pain can be justified (20, 27). Low levels of education have also been reported with an increase in the prevalence of chronic pain such as waist, neck and upper / lower extremities (28, 29). One of the reasons for this incident can be that people with lower educational levels pay attention to their physical health less than others. In this study, patients with chronic traumatic pain, 49.8% housekeeper, 23.3% free / farmer and 26.9% were employees. It has also been seen that there is a link between the occupation and the place of chronic pain. In the study of Ehsani et al. (27), it was found that the rate of chronic cervical pain was 24% in teachers in schools in Tehran and had a direct relationship with the duration of their employment. In the United States, 28.6% of employees in the study suffered from chronic pain (30). In Europe, the amount of back pain in Portuguese workers (63.8%) is approximately twice the Irish (25.7%), and the incidence of cervical and upper limbs is from 26.6% (Ireland) to 67.7% (Finland) (28). Naturally, the chances of chronic pain are more likely to be found in occupations with a higher risk of chronic trauma. Our study did not show any association between BMI and chronic pain. In two studies, BMI more than 30 was associated with chronic pain (31, 32). Some studies have also pointed to high direct BMI and obesity with leg and foot pain (33, 34). The relationship between obesity and pain is usually thought to be due to mechanical causes, but metabolic factors and biochemical interactions may also be involved. For example, obesity can create a mild inflammatory environment that can possibly degenerate musculoskeletal and pain disorders. Leptin is said to increase the synthesis of inflammatory cytokines, and mediators of pain and degeneration in knee osteoarthritis (35, 36).

In general, chronic pain can have various causes, such as anatomical factors, intervertebral discs, muscles, ligaments, joints, nerves and vessels. Also, causes like chronic osteoporotic fractures are not expected (17, 37). It is suggested that a study could be designed to investigate the causes of chronic traumatic injury in the Babol population and how to deal with them. According to this study, chronic traumatic lesions had a significant outbreak in the subjects. Therefore, it is suggested that through media and other means of social education, the principles of the prevention of chronic trauma and its therapeutic care should be trained in order to raise awareness among people in this field.

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