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THE EVALUATION OF DEMOGRAPHIC AND ETIOLOGICAL FACTORS OF SHOULDER SURGERIES IN TEACHING HOSPITAL

Anaesthesiology

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ABSTRACT

Introduction:
The wide range of motion and poor bone stability make the shoulder joint dislocation more than any other large joint. Yet, there is still a controversy about type of shoulder joint injuries in different ages, this study was conducted with the aim of evaluating the demographic and etiologic features of shoulder surgery.

Materials and methods:
This descriptive cross-sectional study was performed on all patients who underwent shoulder surgery during six-month period in Tabriz Shohada Hospital. The collected data by questionnaire included demographic information, history of disease and previous surgery, time, type and cause of injury, and changes in tissue.

Results:
In this study, 117 patients were studied(64% males and 36% females) and the most abundant group was 25 to 34 years old. In 57% of the cases, the right shoulder was damaged and falling was the most common mechanism of responsible injury (44.4%). The most common injury was labrum and articular capsules injury (40.2%); then injury of rotator cuff (34.2%). There was no significant relationship between gender and type of injury (P = 0.245.There was a significant correlation between age and type of injury (P <0.001).

Conclusion:
The incidence of shoulder injuries was higher in men. The most common injuries were labrum, articular capsules and rotator cuff injuries respectively. Also, there was no relationship between gender and type of injury; so there was a significant relationship between age and type of injury.

KEYWORDS

Shoulder surgery, Shoulder injuries, Etiology.

Introduction:
The shoulder belt which connects upper extremity to the trunk, composed of arm, scapula, and clavicle bones (1). The shoulder joint is ball and ……joint (2).Shoulder pain is one of the most common musculoskeletal disorders. Various disorders can contribute in this pain (3). Also, shoulder injuries are one of the most common orthopedic disorders that can be observed in different individuals (4). For example, shoulder dislocation represents the most severe form of shoulder instability. The actual prevalence of intra-articular lesions of shoulder dislocations which were surgically treated in first time, is uncertain. Age difference may be related to type of injury (5). The initial diagnosis and treatment of shoulder dislocation in active individuals requires a systematic clinical evaluation with true understanding of pathology and anatomy (6).Although, about 50% of large joints dislocation occur in this joint (8). The prevalence of traumatic dislocation in general population is reported to be 1.7%. But it can be doubled in people with high physical activity. Acute anterior dislocation of shoulder is common in general population, but its occurrence in the athlete's young population is 2 fold (3, 6, 9). The rapid diagnosis of this injury is important because early insertion will result in faster recovery (6).On the other hand, age-related factors of increased rupture of the rotator have been reported. Although, the rupture of entire thickness of rotator cuff has been reported to be approximately 7 to 40%, but studies by MRI and ultrasound showed that high percentage of these tears is asymptomatic (10).

Glenoid Labarum injuries, is also common in the athlete and general population (3, 9, 11). Gender-related changes in shoulder structure are defined, such as the acromion and rotator cuff muscles tipping. Despite of many studies about differences in glenoid labarum, there is still a clear lack of what to investigate in age-related changes and normal types (3, 6). Increased rupture and structural defect, especially in the upper and anterior-upper part of labarum, can be observed with increased age (6). There is still a controversy about type of injuries in shoulder joint on different ages, and also number of people who were referring surgery due to several reasons, this study conducted for evaluation of related issues.

Methods and Materials:
This cross sectional descriptive study was conducted on all patients who underwent shoulder surgery from March 1, 2016 until July 2012 in Tabriz Shohada Hospital. Sampling was performed by census method and 117 patients were evaluated in this time period. This study approved by Ethics Committee of Tabriz University of Medical Sciences. All patients who were candidates for surgical procedures included in the study. Before and after admission, physical examination was performed and data was recorded in a questionnaire. The variables were followed as: age, gender, weight, height, BMI, time of injury, location of injury, type of damaging agent, type and severity of injury, interval between injury and referring to physician, distance between injuries and surgery, degree of education, occupation, active or inactive life, type of surgery, right or left shoulder, first or repeated injury, history of previous surgery, underlying illness, preexisting changes in the tissues during surgery, defined damage during operation.

Data were entered into IBM SPSS ver23 software and then analyzed using descriptive tests (mean, standard deviation, frequency). Chi-Square test was used to evaluation of association among variables. In this study, P-value of 0.05 was considered as significant.

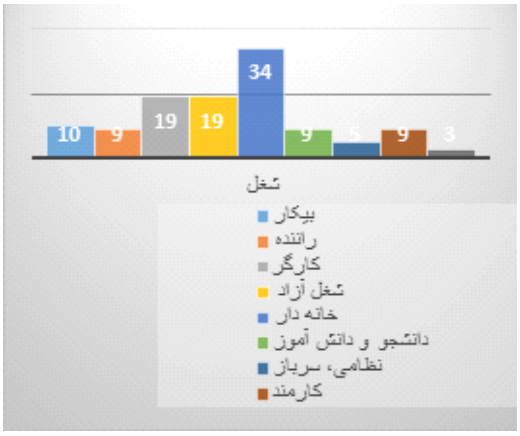
Based on the type of study and absence of intervention in treatment process of patients, this study did not have any ethical case. Patient information remained confidential and all Helsinki criteria were considered.

Results:
The mean age of 117 patients, was 43.04 ± 15.98 (min = 19, max= 76 years old).the frequency of patients in different range of age was summarized in table 1. 64% of patients were male. The mean of body mass index was 26.77± 4.2(min = 18.3 and max = 36.73). The majority of patients had lower degree of education (28 cases = uneducated, 30

cases = high school degree, 26 cases = diploma, 27 cases = bachelor, 6 cases = master or higher education degree). The frequency of different occupation were shown in graph1.

Table- 1 . The frequency of patients in different range of age

Frequency (Percentage)	Age group(years old)
13(11.1%)	15-24
30(25.6%)	25-34
23(19.7%)	35-44
22(18.8%)	45-54
15(12.8%)	55-65
10(8.5%)	65-74
4(3.4%)	75-84



Graph1 – The frequency of various occupation

79.5% had no history of operation. So, reduction of ipsilateral shoulder, femur fracture and carpal tunnel syndrome were observed in 4.3%, 2.5% and 2.5%, respectively. 76.9% had not any underlying disease, Diabetes mellitus, hypertension, epilepsy, multiple sclerosis, avascular necrosis of femur, rheumatoid arthritis and ischemic heart disease were common comorbidities with 10.2%,8.5%,5.1%,1.7% ,0.9%,0.9% and 0.9%,respectively. 6 cases affected by DM and hypertension simultaneously. Right shoulder (57%) affected more than left shoulder (42%) and in one case (1%), bilateral involvement was seen. The most common reason of injuries was falling (44.4%). 53% of cases experienced first time of shoulder injury while 47% of cases affected by shoulder injury more time (Table1).

Table1- The frequency of damage and type of injury

Damage agent	Frequency (%)	Type of injury	
Pressure when lifting	5(4.3%)	Bone fracture	6(5.1%)
Falling on the shoulder	52(44.4%)	Damage of rotator cuff	40(34.2%)
Crash	9(7.7%)	Damage of the labrum and articular capsule	47(40.2%)
Direct hit	11(9.4%)	Joint surface damage	12(10.3%)
Chronic pressure	14(12%)	Bone fracture + Damage of rotator cuff	2(1.7%)
stretch	10(8.5%)	Bone fracture + Damage of labrum and joint capsule	6(5.1%)
Frequent trauma	2(1.7%)	Damage of rotator cuff + injury to labrum and articular capsules	1(0.9%)
Removing heavy body	7(6%)	Damage of rotator cuff + Saddle surface damage	1(0.9%)
Throw fist	2(1.7%)	Joint damage + Damage of labrum and joint capsule	2(1.7%)
Tonic clonic movements during seizure	5(4.3%)	……..	……..

Also, the results showed that damage in 44 patients led to bankart lesions, resulted in a rupture of the rotator cuff and labrum in 30 and 6 patients, respectively. On the other hand, Chi-square statistical analysis did not show a significant association between gender and type of injury (P = 0.245).

In patients younger than 35 years old, the most commonly reported injury was injury of the labrum and articular capsule. However, in patients older than 35 years of age, the most injury was tearing of the rotator cuff. It should be noted, however, that in patients aged between 75 and 84, cases with injury of rotator cuff, labrum and articular capsules, and joint injury were equal to each other(i.e. 1 case). On the other hand, in Chi-Square analysis, there was a significant association between age and type of injury (P <0.001), however, at an earlier age, cases of labrum and joint capsule injury were more common and damage to injury of rotator cuff were more prevalent at higher age.

Discussion:

The most frequent age range were 25 to 34, 35 to 44, and 45 to 54 years old. Meanwhile, the mean age in the study of Sadat et al., Which had been studied by all orthopedic patients, was 28.8 (12) and Antonio et al., Had an average age of 34.2 years in their survey (13), which was lower than the value in this study. This difference can be due to the difference between the type of injury induced by the various studies, in other words, given that the present study only reviews the patients under shoulder surgery. Also, 64% of the patients were men. This proportion was reported in the study of Sadat et al. 78% (12) and in the study by Antonio et al. 77% (13), both of which are similar to the results of this study. The results showed that most of the patients had less education than the diploma, illiterate and bachelor's degree, respectively. However, housewives and then workers or free occupations were most patients. The frequency of right shoulder injuries is greater than the left shoulder injury (57% versus 43%).The results of the present study also showed that the most common mechanism of injury was loss, chronic pressure on the shoulder and direct impact. Study of the results of Mehdi Nasab et al demonstrated similar results, for example, falling on shoulder, falling on open hand during exercise (volleyball, football) were reasons of shoulder dislocation (13).

In general, the most common injuries were injury of labrum and articular capsules (40.2%) and then injury of rotator cuff (34.2%), respectively. Also, injury in 44 patients led to bankart lesion, in 30 patients resulted in a rupture of the rotator cuff and in 6 patients resulted in ruptured labrum.

SupraSpinatos was the most commonly damaged muscle in these patients. These results are largely similar to the results of past studies. For example, Hintermann et al showed that the most common injuries were anterior glenoid labrum, articular capsular disorder, glenohumeral ligament, and rotator cuff rupture (14).The examination of the injuries in the studied population in men and women showed. The most common injuries in men include injury of tendons and joint capsules, muscle rupture and; articular surfaces. In women, the most commonly injuries include muscle rupture, damage of labrum and joint capsule, and articular surfaces. Statistical analysis showed no statistically significant association between gender and type of injury. Also, the association between age and type of injury showed that in patients less than 35 years of age, joint capsule was the most prevalent injury. However, in patients more than 35 years old, the greatest damage is due to rotator cuff injury. On the other hand, statistical analysis suggested a significant association between age and type of injury, at an earlier age. Antonio et al demonstrated that, rupture of rupture was more common in elderly patients (13), which is contrary to the results of this study. However, in the study of Elena Pocecco et al, the majority of the injured were younger people. In this study, there was no observed significant association between age, injury, and disability (11).

Conclusion:

In general, about two thirds of patients are men and the incidence of shoulder injuries leads to surgery in men. Right shoulder injury is more common than left shoulder injury. The most common mechanism for causing injury, including falling, chronic pressure on the shoulder and direct impact, respectively. We concluded that precise to immunity precautions in work may be prevented such acute or chronic lesions.

Limitations and suggestions

The present study was conducted over short time, it is suggested that a similar study should be conducted over a longer period of time and with a larger statistical society to achieve more accurate results. We must examine the factors affecting prognosis and the improvement of shoulder injuries that have undergone surgery. Based on frequency of patients with lower education level, as well as in housewives and workers, it is recommended to give the necessary information to prevent orthopedic and especially shoulder injuries

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