

PAINFUL SHOULDER SYNDROME AS A CAUSE FOR CONSULTATION IN A PRIMARY CARE UNIT OF THE MEXICAN INSTITUTE OF SOCIAL SECURITY, MEXICOJesús Roberto Robles López¹, Efraín Montenegro Reyes¹ and José D. Méndez*²¹Family Medicine Unit No. 5. Mexican Institute of Social Security. Nogales, Sonora. México.²Medical Research Unit in Metabolic Diseases, Cardiology Hospital. National Medical Center, Mexican Institute of Social Security. Mexico City, Mexico.***Corresponding Author: José D. Méndez**

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ABSTRACT

The aim of this study was to identify the main factors related to painful shoulder in patients who attend to a first level medical care unit. The study was carried out between the months of August and September 2021, a total of 126 patients with painful shoulder were included to whom a questionnaire was applied to determine the factors associated with the condition. Statistical analysis was carried out based on measures of central tendency and frequency. It was observed that within the factors related to painful shoulder, the position assigned to the worker is the one with the greatest influence, being that of production operator the most affected with 73% of the participants, 14% for storekeepers, 13% for mechanics, 5% for supervisors and 2% for other positions, which is why long working hours are ruled out as the main risk factor for painful shoulder, since most patients 74.6% with this diagnosis work without exceeding 11 hours of work. According to the results obtained in this study, long working hours were ruled out as the main risk factor for painful shoulder, since most patients (74.6 %) with this diagnosis work without exceeding 11 hours of work, however if they have a greater risk is the position assigned to the worker, being that of production operator the most affected with 73% of the participants.

KEYWORDS: Shoulder Pain, Associated Factors, Prevalence, Shoulder Movements.**1. INTRODUCTION**

Painful shoulder syndrome is a set of signs and symptoms that includes a heterogeneous group of diagnoses that include alterations of the muscles, tendons, nerves, tendon sheaths, nerve entrapment syndromes, joint and neurovascular alterations.^[1] Statistics estimate that 20% of the general population will suffer shoulder pain throughout their lives with a prevalence that can reach up to 50%, being a frequent disease in primary care consultations.

This pathology is known to occur mainly between the fourth and fifth decades of life, with a predominance in the female gender and there are various associated factors within which they are found; age, gender, anatomical problems, activity and work seniority, traumatic and metabolic history.^[2, 3]

Risk factors in adults involve repetitive joint movements and exposure to vibrating tools or machines. There are occupations associated with a greater propensity for shoulder pain, such as cashiers, waiters, stevedores, hairdressers, plasterers, painters, and decorators. Its association (scientific evidence is scarce) with stress, pressure and the degree of job dissatisfaction has been mentioned.^[4]

Painful shoulder has become one of the main reasons for consultation in primary care, becoming the second reason for consultation in relation to musculoskeletal conditions that attend the primary care service.

It is estimated that approximately 20% of the general population will suffer from shoulder pain throughout their lives, with a prevalence that can reach up to 50%, being a frequent disease in primary care consultations.

Some investigations in relation to this entity affirm that it is responsible for 16% of all musculoskeletal pain behind patients with low back pain. Due to the increase in patients who go to the first level of care with a painful shoulder, we consider it important to know the main factors associated with this pathology.

This study was designed to identify the main factors related to painful shoulder in patients who come for consultation for this reason in the Family Medicine Unit No. 5 of the Mexican Institute of Social Security, in Nogales, Sonora. Mexico.

2. MATERIALS AND METHODS

2.1. Patients

The protocol was approved under number R-2019-2604-013 by the Local Research Committee and by the authorities of the Family Medicine Unit No. 5 in Nogales, Sonora, Mexico. The research was carried out during the months of August and September 2019.

Patients were asked to participate by signing informed consent. A special format was adapted for this research where the inconveniences were explained in detail, as well as the probable benefits of their inclusion.

A total of 126 patients with painful shoulder were included in the project who met the inclusion criteria in the study. Inclusion criteria: patients older than 20 years with a painful shoulder assigned to Family Medicine Unit No.5 who attended the consultation during the period of time established for data collection and who agreed to participate in the study by signing their informed consent. Exclusion criteria: patients who, due to some physical or intellectual disability, were unable to answer the researcher's items, and patients with a surgical history for shoulder pathology.

Once their inclusion in the study was accepted, the responsible researcher proceeded to ask the necessary questions to obtain the study variables, emptying the answers in the data collection sheet for subsequent statistical analysis.

2.2. Statistical Analysis

Statistical analysis was carried out in a statistical package based on measures of central tendency and 2x2 contingency tables. The results obtained are presented in the form of graphs to facilitate their interpretation.

3. RESULTS

It was observed that within the factors related to painful shoulder, the position assigned to the worker is the one with the greatest influence, being that of production operator the most affected with 73% of the participants, 14% for storekeepers, 13% for mechanics, 5% for supervisors and 2% for other positions (Figure 6), which is why long working hours are ruled out as the main risk factor for painful shoulder, since most patients 74.6% with this diagnosis work without exceeding 11 hours of work (Figure 5).

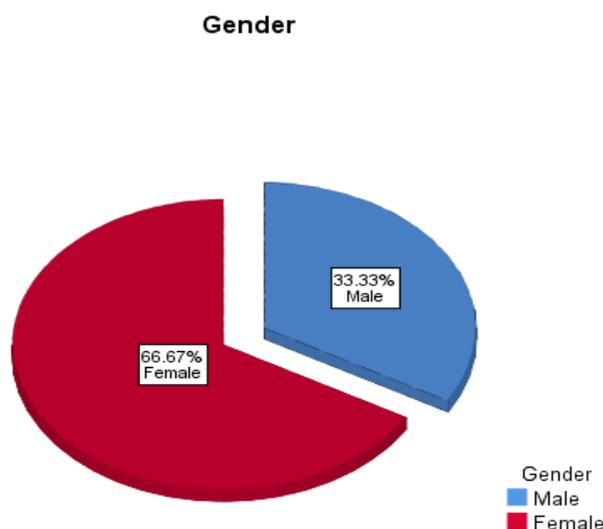


Figure 1: Distribution of the participants by gender. It was observed that in terms of gender, 85 were women, giving a percentage of 67.5% and the rest of the respondents, 41 were men, which is equal to 32.5% of the total of the surveys.

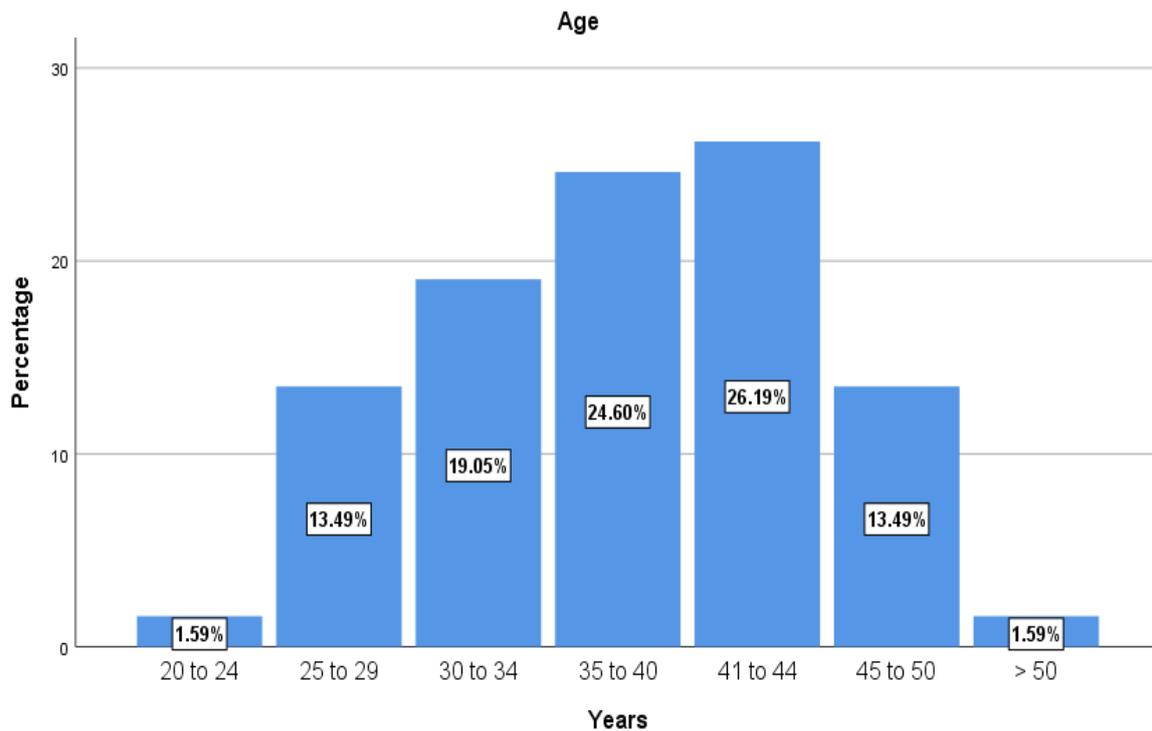


Figure 2: Distribution by age group. Of the 126 participants, the age group that presented the highest incidence of painful shoulder is the 41 to 44 year group with 26.2%, followed by the 35 to 40 year group with 24.6%, the 30 to 34 year group with 19%, while the group from 25 to 29 and 45 to 50 with 13.5%, with less affection were the age groups from 20 to 24 and older than 51 years with 1.6%.

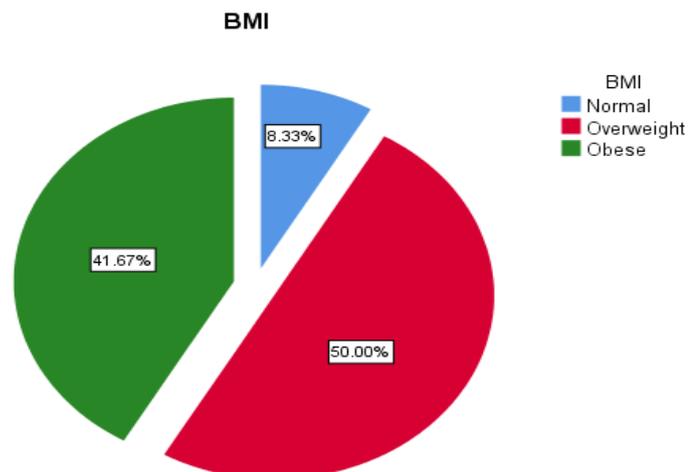


Figure 3: Distribution by body mass index (BMI). Of the 126 people surveyed, a predominance of painful shoulder can be observed in people with high BMI, with the overweight class prevailing in 77 people and obesity in 37 people, equivalent to 61.1% and 29.4% respectively. The rest of the respondents who present shoulder pain is 7.9% for people with normal weight and 1.6% for people with malnutrition.

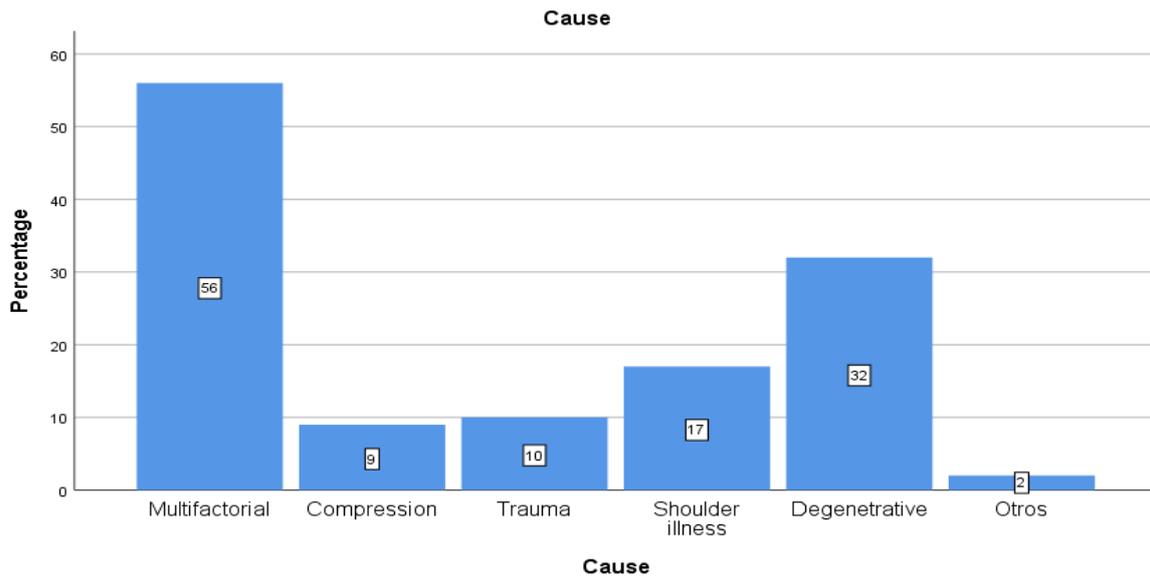


Figure 4: Distribution by etiology. The multifactorial cause predominates with a percentage rate of 44.4%, 25.4% is due to degenerative causes, 13.5% due to disease, 13.9% due to disease, 7.1% due to joint compression and 0.8% presented shoulder pain for psychogenic causes and secondary to fractures.

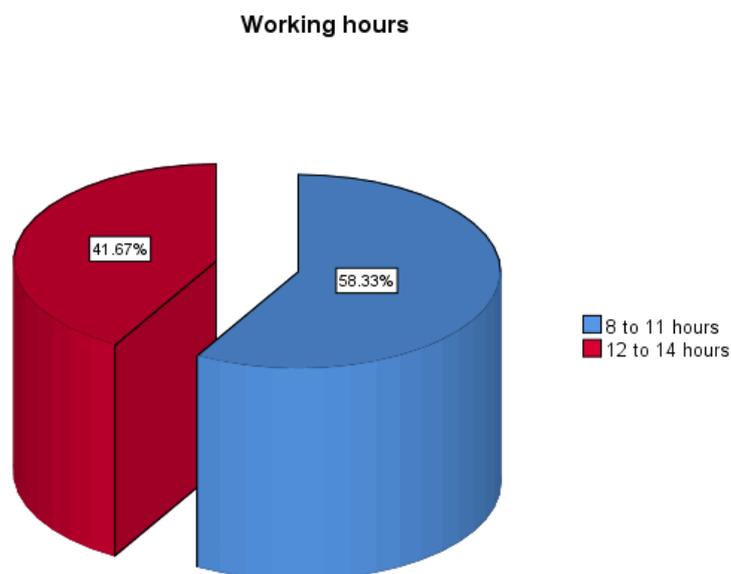


Figure 5: Distribution by working hours. The working hours that most affected were 8 to 11 hours, with a total of 94 people which is equivalent to 74.6% of the total respondents and with a schedule of 12 to 14 hours 25.4% that are 32 people of the total of the participating patients.

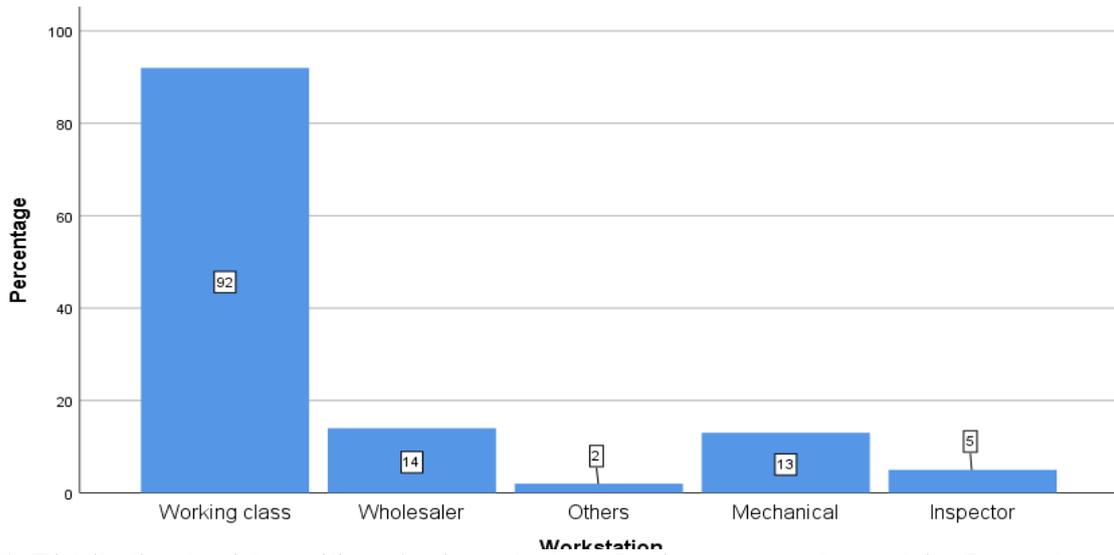


Figure 6: Distribution by job position. An important predominance was observed in those who work as production operators, resulting in 73% of the participants, with 14% for storekeepers, 13% for mechanics, 5% for inspector and 2% for other positions.

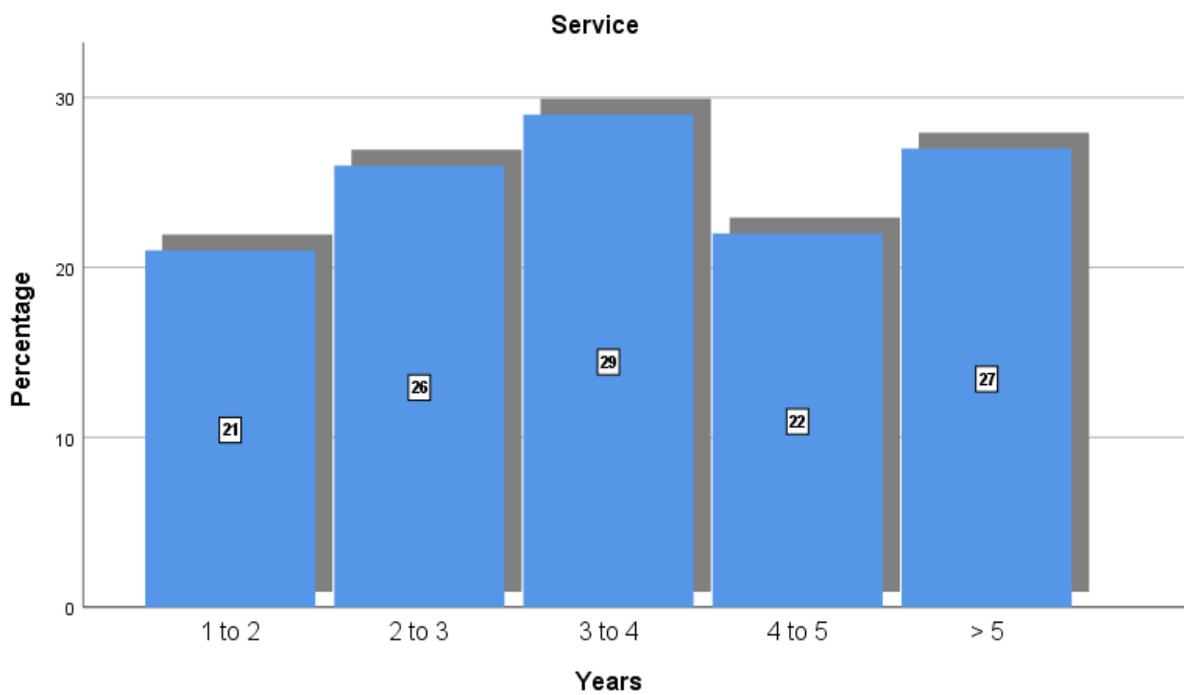


Figure 7: Distribution by years of seniority. Due to work seniority, the prevalence of the condition was 23% for those who are 3 to 4 years old, 20.6% for 2 to 3 years, 17.5% 4 to 5 years, 16.7% from 1 to 2 years.

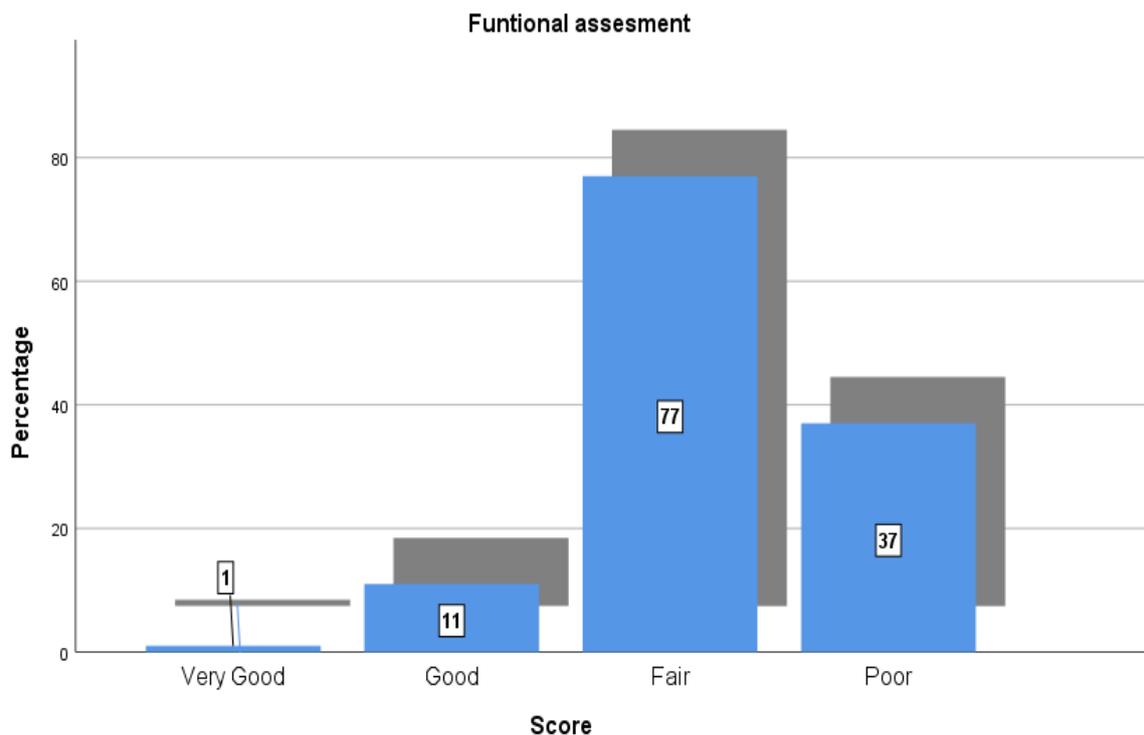


Figure 8: Of the 126 participants in this project, 61.1% had medium functional capacity, 29.4% had poor functional capacity and 8.7% had good functional capacity.

4. DISCUSSION

It has been estimated that around 9% of men and 12% of women experience shoulder pain at some point in their life. In addition to showing that only about 50% of individuals who experience shoulder pain seek care and of these 95% start management in primary care units.^[5]

According to the American Association of Orthopedic Surgeons, about 4 million people in the United States seek care for shoulder problems and 1.5 million see an orthopedist. In Latin America, a study carried out in Colombia estimated the prevalence of this pathology between 3% and 7%.^[5]

The shoulder joint can be affected by multiple pathological processes all of them can cause painful symptoms in patients, although in most cases these symptoms are due to periarticular soft tissue disorders.^[6]

Regarding the impact that this pathology generates in the individual, the disability caused by the painful symptoms of the shoulder is especially significant when they tend to be chronic, in addition, in this type of patients the intensity of the pain is correlated with anxiety, depression and a worse prognosis.^[6]

In Mexico it is a common problem, and according to a study that included 466 women between the ages of 18 and 40, a prevalence of 29% was found. In rehabilitation services, this ailment occupies almost 10% of the total outpatient consultation, affecting mainly people of

productive age, which results in a great cost for health institutions and society.^[7]

According to the available reports, it is estimated that shoulder pain from any cause has a prevalence between 16-26%, ranking as the third reason for consultation due to alteration in the musculoskeletal system.^[8]

The prevalence increases with age and with the development of some professional or sports activities (tennis, racquet, volleyball, basketball, all those exercises and / or activities that are above the head) that cause adverse conditions for the articular structures of the shoulder, with the presence of traction, compression, contusion, inflammation and degeneration.^[8]

In relation to the above, there are reports that currently place this pathology as the third reason for consultation in primary care. A recent review of epidemiological studies estimates its incidence at between 9 and 25 cases per 1,000 inhabitants. Although these figures vary according to age group, the methodology, the study and the diagnostic criteria used.^[9]

It should be noted that patients with painful shoulder pathologies have an important impact on their quality of life, due they undergo various modifications in their daily role or face sudden changes that alter their well-being in one way or another.^[10]

According to several authors and the National Institute of Occupational Safety and Health of the United States of

America, none of the musculoskeletal disorders can be explained exclusively by risk factors at work, but it is necessary to measure individual psychosocial and sociocultural factors related.^[10]

Therefore, knowing the risk factors should be reflected in decision-making in the clinical processes of prevention, diagnosis and treatment. However, some risk factors are not easily preventables and the results of their management are not the best.^[11]

The force requirement with a load greater than 20 Kg is related to the etiopathogenesis and has an incidence of 10%, according to a systematic review of the literature in 2010.^[12]

The main causes of shoulder pain are degenerative rotator cuff disease, which can be responsible for up to 65% of cases of painful shoulder in adults. As risk factors for the development of injury to these structures, aspects such as work overload, performing work with frequent lifting of the arms, performing work that involve the application of force from the upper limbs or the handling of vibratory elements are described as risk factors.^[2]

The continuous repetition of movements above the head (abduction and external rotation) either due to work or sports activities is one of the most important risk factors for the development of rotator cuff pathologies. Other factors that should always be borne in mind include tobacco use, obesity, hypercholesterolemia, genetic factors, anatomical variations, scapular dyskinesia, glenohumeral instability and hypermobility.^[13]

The physical examination of the shoulder is especially relevant in soft tissue pathology, since there are various maneuvers specifically aimed at exploring specific structures.^[14]

In the anamnesis of shoulder pain, it is very important to know the location, intensity and type of pain, as well as its possible etiology. Injury history takes special interest in collecting the mechanism, direction and intensity of the injury force, as well as the degree of functional impotence.^[15]

Regarding the rotator cuff, there is literature that states that physical tests aimed at its exploration have good sensitivity and specificity, with an overall precision of around 61-75%. But no single test has a good discriminative value.^[16]

The physical examination examines joint, muscular, and postural dysfunctions. It is carried out with the naked torso and comparatively to the contralateral side. This exploration is repeated over time in order to adjust the treatment and evaluate the results.^[17]

Pinch maneuver: The subacromial space is clamped, Jobe's maneuver: With arms extended in flexion and thumbs down, a lift is performed against resistance, Apley maneuver: The patient tries to touch the contralateral scapula with his hand, first over the head and then behind the back, Patte's maneuver: With the arms close to the body and the elbows at 90°, external rotation is performed, Gerber's maneuver: The hand is separated from the lumbar spine against resistance.^[18]

Shoulder pathology derived from occupational disease is found in group 2 of the current list of Occupational Diseases according to the journal of Forensic Science.^[19] According to official data, in 2013, of all the occupational diseases declared, almost 50% belonged to pathologies caused by forced postures and repetitive movements that produce fatigue and inflammation of the tendon sheaths, peri-tendon tissues, and muscle and tendon attachments.

As causes of shoulder rotator cuff pathology, there are intrinsic factors that lead to tendon degeneration *per se*. However, the relationship between repetitive movements of the shoulder performed above the horizontal, with an acceleration in tendon degeneration, seems clear and evident, being even more so when these lifts are carried out with weight.

Shoulder pain is the third most frequent cause of musculoskeletal disorders among the general population, after low back pain and neck pain, encompassing very frequent processes that appear predominantly in men over 40 years of age.

Painful shoulder, considering with this name various processes with the same dysfunctional significance, is a common cause of processes of prolonged medical disability, either in processes that reach or extend beyond 365 days of sick leave (temporary disability), or in processes who go to a situation of permanent disability. The assessment of temporary disability due to this type of process requires a careful evaluation, also considering the importance of the evaluating medical actions.

The painful pathology of the shoulder is the cause of prolonged absenteeism from work and therefore it is necessary to implement measures that, without diminishing the protection of occupational health, contribute to the quicker and complete recovery of functional limitations.

According to several studies carried out on shoulder pathologies related to professional activity, they emphasize that repetitive and sustained movements with weight above the horizontal are the main risk factor for presenting an occupational disease of the shoulder, avoiding this activity for a long time is the main measure as part of your long-term treatment.

During this research study, 126 patients were involved, all of whom had a painful shoulder pathology diagnosis. Given that in the unit where I am assigned, 80% of our population is dedicated to manufacturing work, which is why we decided to look for the main risk factors for developing a painful shoulder and confirm or rule out whether working hours are one of the main factors risk in these patients.

The results were obtained through the application of the CONSTANT Scale, which served as an evaluation instrument to assess the functional capacity of the patient with painful shoulder, as well as the different variables where working hours, job position, BMI stand out. and most frequent age of presentation.

At the end of this study, it was ruled out that long working hours are the main risk factor for painful shoulder disease, but not the participant's job, with a predominance of the production operator position as the area most frequently seen affected, since it is the area in which the worker performs sustained and repetitive movements of the shoulder, most of the time with a load, which is carried out above the horizontal of the patient, therefore it is one of the most risk factors important to develop injuries in this anatomical area, which agrees with the studies carried out in 2007 by Northover and the study by Seider, which shows that work activities with raised arms have a higher incidence of tears of the supraspinous tendon, as well as rotator cuff injuries.

Regarding the body mass index, it is confirmed according to the risk factors that a body mass index above normal is considered a risk factor for the development of a painful shoulder, since the greater the body fat the spaces articular are limited, having these more friction in themselves.

5. CONCLUSIONS

According to the results obtained in this study, long working hours were ruled out as the main risk factor for painful shoulder, since most patients (74.6%) with this diagnosis work without exceeding 11 hours of work, however they do have a greater risk is the position assigned to the worker, being that of production operator the most affected with 73% of the participants, 14% for warehouse workers, 13% for mechanics, 5% for supervisors and 2% for other positions.

The painful pathology of the shoulder continues to be one of the main reasons for consultation, this pathology has an important impact on the affected patients and the people who make up the family nucleus, since being limited to carry out their work function and the need to require rest temporarily, the family economy is affected and this results in difficulty in meeting the basic needs of each family's life, which sometimes triggers family crises.

On the other hand, absenteeism due to temporary incapacity for work in patients with this pathology has an important impact on companies, which generates expenses for them, as well as for health institutions.

6. RECOMMENDATIONS

There are exercises that are performed during the working day, so that workers who perform sustained and repetitive movements of the shoulder, relax from time to time within their work shift, to avoid short-term injuries, however, due to comments made by the participants, it follows that very few people carry out these types of activities.

In order to improve the quality of life of patients with painful shoulder and avoid permanent injuries, a recommendation would be to implement a job rotation schedule for workers, in addition to promoting short periods of exercises that help avoid the appearance of shoulder injury during working hours within the departments that present a greater risk of developing shoulder pathology, this in order to reduce the costs of temporary disability for the worker for companies and health institutions, as well as to avoid the alteration of the economy and family functionality.

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