



TO FIND THE PREVALENCE OF FROZEN SHOULDER AMONG DIABETES PATIENTS AROUND NAGPUR CITY.

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ABSTRACT

Background: Frozen shoulder is a painful condition that can lead to disability. Diabetics have a higher prevalence of frozen shoulder than the general population, and these individuals are less responsive to therapy and have a larger range of motion limitation. To look for any difference between diabetic patients in terms of gender, insulin dependent, glucose control and affected shoulder. **Methodology:** We carried out this cross-sectional study on a systematically randomized sample of 100 patients with diabetes. It included 44 males and 56 females. A structured questionnaire was designed, and the responses of patients were recorded at the clinic after informed verbal and written consent. The questionnaire outlined the key factors that can lead to a higher frequency of FS in patients with diabetes. **Results:** Based on our results, among patients with frozen shoulder the prevalence of diabetics more than 10 years is 36%. Also, among those with diabetes, 31% were insulin-dependent and 69% were non-insulin dependent. Of the 100 frozen shoulder patients, 57 (57%) had stage I Frozen Shoulder while 36 (36%) had stage II and 07 (7%) had stage III. **Conclusion:** The present study shows that the prevalence of FS is higher in patients with diabetes. It can be attributed to socioeconomic status, lack of awareness, a higher threshold for diagnosis, and/or poor glycaemic control.

KEYWORDS : prevalence, frozen shoulder, diabetes mellitus, public health

INTRODUCTION

Frozen shoulder (FS) or adhesive capsulitis or peri-arthritis is characterized by the gradual development of restricted motion at the shoulder joint with nonspecific radiographic findings. Patients generally complain of severe shoulder pain with an inability to sleep on the affected side as the disease progresses. There are three clinical stages of frozen shoulder: freezing stage, frozen stage, and thawing stage. The freezing stage usually lasts from three to twelve months with moderate to severe pain and stiffness shoulder. In the frozen stage, stiffness increases. This stage lasts for an average of 5 to 12 months and the component of pain is reduced. The thawing stage continues for about 24 months and constitutes gradual relief from the symptoms and recovery of range of motion.

FS mainly affects the older population, with a female predominance. The precise prevalence of FS is unknown, but authors have quoted figures of 2%–5% in the general population¹. Those with prolonged shoulder immobility or systemic diseases are at a higher risk².

The prevalence of diabetes in patients with FS is not well addressed. This condition affects the ability to move the shoulder and usually has unilateral involvement. However, FS can also involve the other shoulder in approximately one of five patients³. FS is extremely uncommon among young people, and it is most seen in individuals aged 40 to 60 years. According to a longitudinal study, female patients have a 1.6 times higher risk of developing this condition⁴.

The pathophysiology of FS in patients with diabetes is still debatable. One theory involves collagen, a major building block of ligaments, tendons, and cartilage holding the bones together in a joint⁵. As more glucose molecules bind with collagen in people with diabetes, it leads to abnormal deposits of collagen in the cartilage and tendons of the shoulder⁶⁻⁸. This buildup then causes the affected shoulder to stiffen up. Inflammation and fibrosis also play a significant role in disease development⁹. Patients who sustain a shoulder injury or undergo surgery of the shoulder can develop FS. When the injury is followed by prolonged joint immobilization, the risk of developing FS is the highest. Gentle abduction,

external rotation, and/or internal rotation at the level of the shoulder joint, within the limits of pain, has been recommended for long-term care in FS patients.

Aim: - Aim of this study was to find the prevalence of frozen shoulder among diabetes patients.

Objective: - To look for any difference between diabetic patients in terms of gender, insulin dependent, glucose control and affected shoulder.

Methodology Study Design: observational study.

Study Type: Survey method.

Sample Method: Convenient sampling.

Sample Size: 100

Study Duration: 24 months.

Study Setting: clinic physiotherapy OPD.

Inclusion Criteria:

All the patients with diagnostic signs of frozen shoulder such as progressive stiffness, dryness, severe pain, limitation of active and passive external rotation of shoulder, and normal shoulder imaging and laboratory tests were included in the study.

Exclusion Criteria:

Individuals with shoulder stiffness and limited movement due to osteoarthritis, rheumatoid arthritis, post-traumatic stiffness, post-operative stiffness, severe physical illness, pregnant women, calcified tendonitis were excluded from the study.

Procedure: Participants were selected based on inclusion and exclusion criteria, and the procedure was explained to the subjects. Informed consent was taken from them. All the survey procedure given below were carried out for 24 months. The obtained scores were compared and analysed statistically.

RESULTS

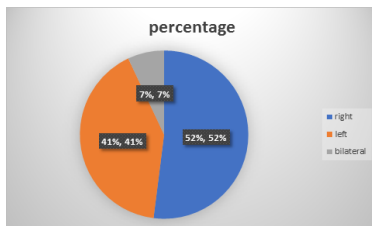
The number of patients studied was 120, out of which 100 were included in the study as they made the inclusion criteria and 20 sample was exclude from the study of which 56 were women

and 44 were men. Out of 100 diabetic people, 31 people were insulin dependent and 37 people had poor control.

The demographic and clinical characteristics of the frozen shoulder patients are summarized in Table. The mean age of the patients was 56 years old. Based on Table 1, there were more females than males with frozen shoulders in this study group (56% vs. 44%), right shoulder (52%) is more affected than left side (41%). Also, 7% of patients suffered from bilateral frozen shoulder.

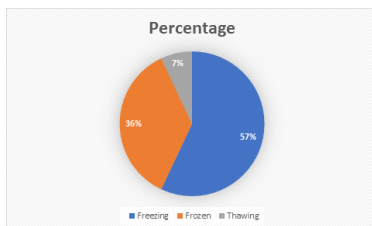
Based on our results, among patients with frozen shoulder the prevalence of diabetics more than 10 years is 36%. Also, among those with diabetes, 31% were insulin-dependent and 69% were non-insulin dependent. Additionally, more than half of the diabetic patients (63%) had good control diabetes (based on their HbA1C test results checked by physicians). Of the 100 frozen shoulder patients, 57 (57%) had stage I Frozen Shoulder while 36 (36%) had stage II and 07 (7%) had stage III.

Graph 1



Graph 1. Shows Affected frozen Shoulder

Graph 2



Graph 2 Stages Of Frozen Shoulder

DISCUSSION

The present study is the first of its kind to estimate the prevalence of FS in a Nagpur city population with diabetes. It also correlates FS with various demographic variables like age, gender, and no demographic variables, such as glucose levels, time since onset of diabetes, mode of anti-diabetic medication.

In our study, Frozen Shoulder was higher in female diabetics, which is higher than the internationally reported values^{4,10}.

Previously, studies have shown that the mode of anti-diabetic medications also affects the prevalence of FS. Patients who were taking oral hypoglycaemic drugs were 1.5 times more likely to develop FS than those who did not use insulin or oral hypoglycaemic drugs¹¹. However, the results of a recent meta-analysis showed no significant relationship between FS prevalence in patients with insulin dependent diabetes mellitus or insulin-treated patients and that in non-insulin-dependent diabetes patients¹².

Shoulder pain was unilateral in 21 (63.6%) patients, while 12 (36.4%) patients had bilateral involvement in the patient population in our study. It is reported in the literature that FS is mostly unilateral; however, 42% of the patients with bilateral FS had diabetes¹². FS itself is not related to inheritance but its incidence in diabetic patients is higher and diabetes has a hereditary component in its multifactorial inheritance. Some

authors have suggested a link between genetic factors and the aetiology of FS but others could not confirm such observations. The present study shows that FS can have a significant hereditary association, as 20 out of 33 patients had a positive family history. Exercise has no effect on prevalence but has some role in the management of FS. Although the patients who were treated with exercise techniques regularly had a slightly better prognosis, no significant association was seen with regular exercise¹³. In patients with a relatively acute disease, oral or injection steroid therapy is more effective and a remarkable improvement in motion can be achieved. Due to the smaller sample size, our study has its limitations. We could not find a significant association in our results with the duration of diabetes. Previous studies have shown that the duration of diabetes is related to the development of FS after controlling for insulin use¹¹. The prevalence of end-stage diabetic manifestations increased in patients with Frozen shoulder as compared to those without FS¹¹.

Limitations :

It can be attributed to a possible component of recall bias and/or insufficient sample. Similarly, a lack of association with age was also found in our results.

CONCLUSIONS:

Effective glycaemic control and early FS management can promise a higher level of productivity in patients with diabetes. Therefore, further population-based studies are required to be conducted in to validate these results.

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