Original Article

Severity of Pain According to Visual Analog Scale in Adhesive Capsulitis of Shoulder in Diabetic Patients

*Hosain M[1], Rahman S[2], Alam MM[3], Islam SMM[4], Islam KA[5], Rahman MM[6], Bhuiyan MK[7]

Abstract

The aim of the present study was to assess the severity of pain according to visual analog scale in adhesive capsulitis patients with DM. A descriptive, cross sectional study was conducted from January to June 2019 among 200 patients attending at Physical Medicine and Rehabilitation Department, Bangabandhu Sheikh Mujib Medical University after obtaining requisite consent from the patients. Data were collected through the assessment of patients in the Outpatient Department. The collected data were analyzed by using SPSS (version 20.1) to assess the severity of pain according to visual analog scale in adhesive capsulitis patients. The study was approved by the institutional ethical committee of BSMMU. Mean age of patients with adhesive capsulitis was 54.85±9.35 years among them more than one third (35%) was 51-55 years of age group. Among the patients 61% was female and 39% was male. Among the patients 54(27%) had adhesive capsulitis, and 146(73%) did not have. Nearly two third female patients (65%) suffered from adhesive capsulitis of shoulder than male patients (35%). The hight number of adhesive capsulitis patients suffering from moderate type of pain and visual analogue score is 4-6, where one third of them suffer from severe type (VAS score 7-10). Overall frequency of adhesive capsulitis of the shoulder among diabetic individuals attending in physical medicine and rehabilitation department of a tertiary care hospital was 27%. Most of the adhesive capsulitis patients suffering from moderate type of pain which visual analogue score is 4-6.

Keywords: *Adhesive capsulitis, diabetes mellitus, visual analogue score.*

1 *Dr. Mohammad Hosain, Medical officer, Physical Medicine and Rehabilitation Department, BSMMU. Phone: 01819231842, E-mail: drhossain17fmc@gmail.com

2 Dr. Sohely Rahman, Professor and Ex. Head, Department of Physical Medicine and Rehabilitation, DMCH

3 Dr. Md. Mahfuzul Alam, Assistant Professor, Department of Physical Medicine and Rehabilitation, KGH

4 Dr. S.M. Mazharul Islam, Assistant Professor, Department of Physical Medicine and Rehabilitation, DMCH

5 Dr. Khaza Amirul Islam, Medical Officer, Department of Hematology, SZMC

6 Dr. Md. Mubdiur Rahman, Assistant Registrar, Department of Physical Medicine and Rehabilitation, MMC

7 Dr. Mohammad Kamruzzaman Bhuiyan, Medical Officer, Physical Medicine and Rehabilitation Department, BSMMU

*For correspondence

INTRODUCTION

Adhesive capsulitis is a well-defined disorder characterized by progressive pain and stiffness of the shoulder which usually resolves spontaneously after about 18 months.[1] The patients typically present with progressive painful restriction in range of movement of the glenohumeral joint without any preceding trauma. They exhibit a capsular pattern of restriction with external rotation being the most restricted followed by abduction in the plane of the scapula and then flexion.[2] Diabetes mellitus is a chronic metabolic condition characterized by persistent hyperglycemia with resultant morbidity and mortality related primarily to its associated micro vascular and macro vascular complications.[3] There is a well-documented relationship between adhesive capsulitis and diabetes mellitus. 10.8% diabetics and 2.3 % non-diabetics were found to have peri-arthrosis of the shoulder, a statistically significant difference between the two groups of patients (P<0.005).[4] There was three consecutive stages: pain, stiffness, and recovery. The stiffness stage was usually related to the duration of the recovery stage. The total duration was longer than is generally supposed (an average total of 30.1 months in contrast to about 18 months as often postulated). Generally speaking, the longer the stiffness stage is, the longer is the recovery stage.[5] Visual Analogue Scales (VAS) provides a simple technique for measuring subjective experience. They have been established as valid and reliable in a range of clinical and research applications, although there is also evidence of increased error and decreased sensitivity when used with some subject groups. The pain VAS is a continuous scale comprised of a horizontal (HVAS) or vertical (VVAS) line, usually 10 centimeters (100 mm) in length, anchored by 2 verbal descriptors, one for each symptom extreme. Instructions, time period for reporting, and verbal descriptor anchors

have varied widely in the literature depending on intended use of the scale. For pain intensity, the scale is most commonly anchored by no pain (score of 0) and pain as bad as it could be or worst imaginable pain (score of 100 [100-mm scale]. To avoid clustering of scores around a preferred numeric value, numbers or verbal descriptors at intermediate points are not recommended.

MATERIALS AND METHOD

A descriptive, cross sectional study was conducted from January 2019 to June 2019 among 200 diabetic patients attending at Physical Medicine and Rehabilitation Department, Bangabandhu Sheikh Mujib Medical University after obtaining requisite consent from the patients. Purposive sampling was adopted for collecting data. The study was approved by the institutional ethical committee. The assessment of patients was held directly in the Outpatient Department. Diagnosis of adhesive capsulitis is clinical. Pain occurs insidiously in deltoid region with shoulder stiffness. Pain at the end of external rotation. Restriction of the movement on both active and passive testing. No abnormal X-Ray findings in the shoulder joint. These characteristic of shoulder pain at onset to three months duration were included. The relevant information was entered into the predesigned proforma to estimate the severity of pain according to visual analog scale in adhesive capsulitis patients with DM. The collected data were entered into the computer and analyzed by using SPSS (version 20.1)

RESULT

Table I Shows that Mean age of patients with adhesive capsulitis was 54.85±9.35 years. In 200 patient's 35% was 51-55 years, 31% was 56-60years, 22% was 46-50 years and 12% was 40-45 years. Among 200 patients with 61% was female and 39% was male.

Table 1: Demographic characteristics of the study population (n=200)

Parameters	Number	Percentage
Age of the patients		
40-45 years	24	12
46-50 years	44	22
51-55 years	70	35
56-60 years	62	31
Total	200	100
Sex		
Male	78	39
Female	122	61
Total	200	100
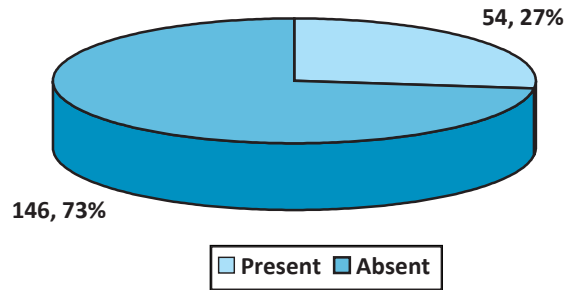
Figure 1: Distribution of patients according to frequency of Adhesive Capsulitis (n=54)

Figure 1 A total of 200 patients with diabetes were included in the final analysis. Among the DM patients 54(27%) had adhesive capsulitis, and 146(73%) did not have adhesive capsulitis.
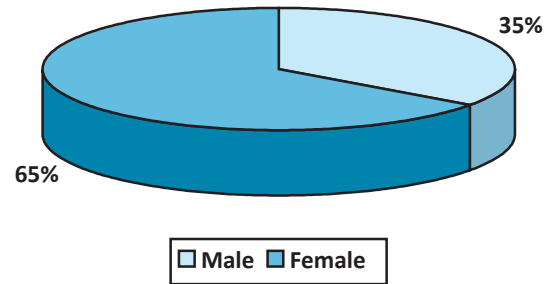
Figure 2: *Pie chart showing presence of adhesive capsulitis among male and female diabetic patient (n=54).*

Figure 2 Female patients (65%) suffered from more adhesive capsulitis and male patients (35%).

Table II Shows that among the diabetic patients with adhesive capsulitis, 22 (41%) had VAS score 4-6 (moderate pain), 14 patients (26%) had VAS score 1-3 (mild pain), 18 patients (33%) had VAS score 7-10 (severe pain).

Table 2: Severity of pain according to Visual Analog Scale (n=54)

Visual analogue score	No. of patients	Percentage
0 (No pain)	0	0
1-3 (Mild pain)	14	26
4-6 (moderate pain)	22	41
7-10 (severe pain)	18	33

DISCUSSION

Adhesive capsulitis is a distinctive clinical entity, usually occurring in the fifth and sixth decades. It may be associated with trauma or with various illnesses, but most cases are idiopathic. The evidence for disease relationships is uncovering, with the possible exception of diabetes mellitus. A total number of 200 patients with diabetes were include in the final analysis. Among the patients 54(27%) had adhesive capsulitis, and 146(73%) did not have adhesive capsulitis. So, prevalence of Adhesive Capsulitis was 27%. A study was conducted by Khan et al. in a tertiary care hospital of Bangladesh upon 300 diabetic and 300 non-diabetic individuals. There, frequency of Adhesive Capsulitis in diabetic group was 20% and in non-diabetic group it was 5.66%.[6] According to that study our frequency result is higher. Probably because, a lot of diabetic patients with Adhesive Capsulitis come from BIRDEM General Hospital, which is a diabetic hospital and very near to BSMMU. Mean age of patients with adhesive capsulitis was 54.85±9.35 years. Among 200 patients, majority 35% was between 50-55 years, 31% was 56-60 years, 22% was 46-50 years, 12% was 40-45 years. In a case report in Bangladesh by Uddin et al. reported that mean age of the patients was 53 years which is similar to our study.[7] Other observer found maximum patients 39% were between the age group of 51-60 which is also similar to our study.[8] Among 200 patients with 61% was female and 39% was male. In a study by Ahmed et al. reported among 325 patients 52.3% were male and 47.7 % were female which is not similar to us.[9] In another study by Khan et al. 31.67% patients were male and 68.33% were female which is similar to our study.[10] Among the patients with adhesive capsulitis most of the patient 16(29.62%) had VAS score 5-6, 14(25.92%) had VAS score 7-8, 12(22.22%) had VAS score 3-4, 8(14.81%) had VAS score 1-2, and 4(7.4%) have VAS score 9-10. In a study among 50 patients 32% had severe pain, 52% had moderate pain, and 16% had mild pain.[11] Which is also similar to this study. Adhesive capsulitis is a chronic disabling condition associated with pain, which require long-term management in the form of physiotherapy and repeated injections. Unfortunately, the treatment is more prolonged in DM patients, and surgery may be required if the condition is not treated early.[12]

CONCLUSION

Study finds that more than one fourth (27%) diabetic patients suffer from adhesive capsulitis of the shoulder. The disease affects predominantly females in sixth decade of age. Most of the adhesive capsulitis patients suffering from moderate type of pain which visual analogue score is 4-6. Further large scale study can be done for longer period to measure the pain score in different stages of adhesive capsulitis.

REFERENCES

1. Apley and Solomon's System of Orthopaedics and Trauma, Tenth Edition, page:365

2. Zreik NH, Malik RA, Charalambous CP. Adhesive capsulitis of the shoulder and diabetes: A meta-analysis of prevalence. Muscles Ligaments Tendons J. 2016;6(1):26–34.

3. Smith LL. Musculoskeletal manifestations of diabetes mellitus. Br J Sports Med. 2003 Feb 1;37(1):30–5.

4. Bridgman JF. Periarthritis of the shoulder and diabetes mellitus. Ann Rheum Dis. 1972;31(1):69–71.

5. Reeves B. The natural history of the frozen shoulder syndrome. Scand J Rheumatol 1976;4:193-6.

6. Ara Doly E. Prevalence of Frozen Shoulder among Diabetes Mellitus Patients: a cross cut survey. Orthop Rheumatol Open Access J. 2018;9(2):9–11.

7. Uddin MM, Khan AA, Haig AJ, Uddin MK. Presentation of frozen shoulder among diabetic and non-diabetic patients. J Clin Orthop Trauma. 2014;5(4):193–8.

8. Khan MSZ, Ahamed M, Hosain M, Doza AKMA, Pattern of Musculoskeletal Disorders among Diabetic Patients Attending a Tertiary Care Hospital in Dhaka. Ibrahim Med Coll J. 2018;2(2):65–6.

9. Ahmad S, Sohail Rafi M, Ahmed Siddiqui I, Hamidi K, Mujahid Faruq N, Ahmad S, et al. The Frequency of Adhesive Capsulitis in Diabetes Mellitus Patients. Pakistan J Rehabil. 2012;11(2):49–55.

10. Khan MSZ, Ahamed M, Hosain M, Doza AKMA, Pattern of Musculoskeletal Disorders among Diabetic Patients Attending a Tertiary Care Hospital in Dhaka. Ibrahim Med Coll J. 2018;2(2):65–6.

11. Irin KN. Characteristics of Adhesive Capsulitis Among the diabetic patients. Bangladesh J Physiother. 2013;2007–8.

12. Diabète FI du. International Diabetes Federation. IDF Diabetes Atlas, 8th edn. Brussels, Belgium: International Diabetes Federation. 2017. 1–150p.