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A study of association of factors causing adhesive capsulitis- an interventional study.

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Abstract

Introduction: One of the commonest condition in middle aged group is Adhesive Capsulitis which is also known as frozen shoulder. The study was undertaken with an aim to describe the association of various causative factors for adhesive capsulitis.

Materials and Method: This prospective interventional study was done from June 2019 to June 2021 for a period of 2 year, at Datta Meghe medical college in association with Jawaharlal Nehru Medical College. The study included a sample size of 40 patient diagnosed as adhesive capsulitis and study population was divided into 2 groups randomly. Socio-demographic data were collected and analyzedwith help of Microsoft excel and SPSS software.

Results: Patients treated with steroid group and saline group had a mean age of 54.90 and 54.60 respectively. The gender distribution in the present study had a distribution of 9 males and 11 females in steroid group while in saline group there were 13 males and 7 females respectively. The presence of DM was observed in total of 19 out of 40 patients. According to group distribution steroid group had 6 patients while saline group had 13 patients. On comparison of steroid and saline groups a significant p value of 0.02 was obtained.

Conclusion: Incidence of Adhesive Capsulitis of shoulder is between 40 to 60 years of age and is rarely seen in patients above 70 years. Diabetes mellitus was a significant associated co-morbidity.

Keywords: Adhesive capsulitis, Etiology, Shoulder stiffness

Introduction

One of the commonest condition in middle age group population is Adhesive capsulitis which is commonly labelled as frozen shoulder. Because of high incidence of adhesive Capsulitis and its crippling nature, it was considered worthwhile to undertake a detailed study about this condition. This clinical condition was initially described in 1872 by **Duplay**[1] who termed the condition as 'periarteritescapulohumerale' or periarthritis involving the periarticular soft tissues around the shoulder.

In 1934, the term 'frozen shoulder' for formerly used by Codman [2] and he stated that majority of cases with severe restriction of movements recover within 2 years irrespective of the treatment. He labelled the condition as 'frozen shoulder' comprising of gradual onset pain in shoulder, restricted movements and rotations of shoulder with normal appearance in radiographs.

The term 'Adhesive Capsulitis' was coined by **Neviaser** [3,4] in 1945 and described contraction and thickening of joint capsule with absence of synovial fluid and chronic inflammatory changes in of capsule.

The American Shoulder and Elbow Surgeons is a disease of unknown etiology characterized by restricted active and passive shoulder motion. [5,6]

C. M. Robinson [7] (2012)Found in his study found that2% of the general population are affected with frozen shoulder.

Wright V [8] (1976) and ***Rizkt [9] (1982)*** stated that, this pathology is rare before the age of 40 yearswith incidence between 40 to 60 and women are most commonly affected as compared to men.

Tighe CB [10] (2008) said that most common condition associated with Frozen Shoulder is Diabetes Mellitus. Diabetes mellitus and frozen shoulder occur coincidentally in approximately 71.5%caese. Hence the current study done to know about the incidence and various factors related to adhesive capsulitis.

Material and Methods:

It was a interventional study with a prospective design carried for 2 years (June 2019 to June 2021) in Datta Meghe Medical College in association with Jawaharlal Nehru medical college. Patients were randomized in two groups of 20 patients each

1. **Group A**- In Group A patients, Injection of corticosteroid, local anaesthetic and saline were administered.
2. **Group B**– In Group B patients, Injection of normal saline and local anaesthetic were given.

Inclusion Criteria were:Limitation of passive movement in the glenohumeral joint compared with the unaffected side, more than 30 degrees for at least two of these three movements: forward flexion, abduction or external rotations. The patients with diabetes on treatment with limitation of range of motion. Exclusion criteria was non consenting patients and patients who were contraindication of steroid injection.

Clinical assessment of all the patients was done and restricted range of motion was recorded. Plain Anteroposterior and axillary radiographs of shoulder joint were done to rule out bony pathologies and ultrasound of shoulder joint for confirmation of the diagnosis of adhesive capsulitis was carried out.

Statistical analysis was done and tests Chi-Square Test and test for signifance was carried out between 2 groups.

Results.

The study was conducted in a study population of 40 patients who were then divided into 2 groups of 20 patients each as described in methodology. Patients treated with steroid group and saline group had a mean age of 54.90 and 54.60 respectively.The gender distribution in the present study

had a distribution of 9 males and 11 females in steroid group while in saline group there were 13 males and 7 females respectively.The affected shoulder of right side is pre dominant in the present study. A patient with adhesive capsulitis of bilateral shoulders was considered in saline group. No significant comparison was observed between the sides involved in 2 groups.The presence of DM was observed in total of 19 out of 40 patients.According to group distribution steroid group had 6 patients while saline group had 13 patients.

On comparison of steroid and saline groups a significant p value of 0.02 was obtained. This shows that the saline group had more no. of patients who were diabetic than in steroid group.

Discussion

40 patients diagnosed as Adhesive Capsulitis were studied and were divided into 2 groups. In the present study, patients treated with steroid group and saline group had a mean age of 54.90 and 54.60 respectively.

Wright V [8] ***(1976)*** and ***Rizkt*** [9] ***(1982)*** stated that, adhesive capsulitis is rarerly occurs before 40 years of age, peak incidence is observed between 40 to 60 years and is rarely seen over 70 years of age.

In the present study the gender distribution had a distribution of 9 males and 11 females in steroid group while in saline group there were 13 males and 7 females respectively. Total number of female in the study was 18 (i.e. 45%). This contradicts the observation by ***Wright*** [8] ***(1976)*** and ***Rizkt*** [9] ***(1982)*** in there study, which showedslight female predisposition.

In the present study the affected shoulder of right side is pre dominant, with a total of 25 patients (62.5%) on combining the two groups. Overall no significant difference was observed in view of sides involved in two groups. Literatures go against these findings of this present study, stating that the non-dominant shoulder is commonly affected in adhesive capsulitis.

In present study Diabetes Mellitus was observed in total of 19 out of 40 patients (47.5%). According to group distribution, steroid group (20 patients), 6 patients (30%) had Diabetes Mellitus, while saline group (20 patients) 13 patients (65%) had DM. ***William H. Simon*** [11] ***(1975)*** described the co-association of adhesive capsulitis and diabetes mellitus. ***TigheCB*** [10] ***(2008)*** said Diabetes mellitus is the condition most commonly associated with frozen shoulder. The combined prevalence is estimated to be approximately 71.5%. Diabetic patients have a 10% to 20% more risk of frozen shoulder as compared to non-diabetic population. ***Brownlee M*** [12] ***(1988)*** studied that the high incidence of frozen shoulder in patients with diabetes is speculative.

On comparison of steroid and saline groups a significant p value of 0.02 was obtained. This shows that the saline group had more no. of patients who were diabetic than in steroid group.

Conclusion:

Peak incidence of adhesive capsulitis is between 40 to 60 years of age and it is rarely observed in patients over 70 years of age. Male to Female ratio in relation to adhesive capsulitis was almost equal. Commonly right shoulder was affected in the present study. Diabetes Mellitus was a associated co-morbidity significantly observed in adhesive capsulitis.

Limitations: Small study sample.

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