ECRONICON OPEN ACCESS

EC ORTHOPAEDICS
Research Article

Effectiveness of Maitland Grade Mobilization Technique in Patients with Frozen Shoulder in Selected Hospitals of Dhaka City

Md Mizanur Rahman[1]*, Tapas Chandra Saha[2] and Md Byzed Mia[3], Sarker Shamima Ahmed[4] and A. K. M. Majbah Uddin[5]

[1]Consultant and Head of the Department, Physiotherapy, Nightingale Medical College Hospital, Bangladesh

[2]Clinical Physiotherapist, Regent Hospital Limited, Bangladesh

[3]Clinical Physiotherapist, Amin Physiotherapy Center, Bangladesh

[4]Assistant Professor, Department of Community Medicine, Tairunnessa Memorial Medical College & Hospital

[5]Senior Physiotherapist, Pan Pacific Hospital, Training & Research Institute, Bangladesh

***Corresponding Author**: Md Mizanur Rahman, Consultant and Head of the Department, Physiotherapy, Nightingale Medical College Hospital, Bangladesh.

Received: January 16, 2017; **Published:** January 30, 2017

Abstract

Still to date there is no standard/gold standard treatment regimen for frozen shoulder. Many different therapeutic regimens and no single methods of treatment cure this condition. This is why this cross sectional study was conducted to assess effectiveness of Maitland Grade Mobilization Technique in Patients with Frozen Shoulder. Convenient sampling technique was applied to collect sample. We studied total 40 patients. Mean age of the respondents was 51.98 1.01 years. More than half of the patients represented from 40-50 year age group. Female were quite double than male. About 40% of the respondents were service holder. Forty percent patients took 15 - 28 session followed by 14 session 32.5% patients and 27.5% were >29 session. About 35% patients had 61-80 degree, 32.5% had 30 - 60 degree of abduction (before treatment) and after treatment 50% patients had 81 - 90 degree, 27.5% had 71 - 80 degree and 22.5% had 60 - 70 degree respectively. About 47.5% patients had 47.5% degree, 42.5% had 30 - 45 degree and 10% had 61 - 80 degree of external rotation (before treatment) whereas 40% patients had 81 - 90 degree, 32.5% had 71 - 80 degree and 27.5% had < 70 degree respectively after treatment. Statistically significant association was found between type of treatment and affected shoulder ($p = 0.002 < 0.05$). Again statistically significant association was found between type of treatment and severity of pain (after treatment) ($p = 0.007 < 0.05$). Maitland grade mobilization technique in patients with frozen shoulder was proven effective in terms of range of movement as well as severity of pain.

Keywords: *Effectiveness; Maitland Grade Mobilization Technique; Frozen Shoulder*

Introduction

Frozen shoulder patients are commonly seen in our daily practice. Actually most of the patients become confused to whom should consult and how and for what reason they are suffering. Study suggests that among 140 persons with shoulder pain 99 (71.4%) had frozen shoulder in our country [1]. Human shoulder is the most mobile joint in the body. This mobility provides the upper extremity with tremendous range of motion such as adduction, abduction, flexion, extension, internal rotation, external rotation, and 360° circumduction in the sagittal plane. Furthermore, the shoulder allows for scapular protraction, retraction, elevation, and depression [2]. A stiff and painful shoulder is often casually frozen shoulder. This type of generalization should be avoided, as one could miss other more serious conditions that need to be treated urgently. The typical findings are pain and a global restriction of movement with limited passive external rotation being the most notable [3]. Frozen shoulder can be a primary or idiopathic problem or it may secondarily be associated with another systemic illness. Both primary and secondary frozen shoulders have similar clinical presentations but distinct precipitating factors [4]. The non-communicable diseases are increasing day by day in Bangladesh; the numbers of different people of NCDs are suffering accordingly.

Frozen shoulder is now a days a common disorder of shoulder joint in this circumstances. As, we know that the frozen shoulder can automatically recovered after a while, but it may create the temporary disability and getting people to be non-functional as well. The frozen shoulder is having different stages; and in these different stages it appears differently- the progression and the treatment protocol may also differ here. This study would be expected to determine Maitland grade mobilization of frozen shoulder patients in selected hospitals of Dhaka city. This study also expected to disseminate the findings of this study to take necessary steps to better cure frozen shoulder.

Materials and Methods

This was a cross-sectional study conducted to determine effectiveness of Maitland grade mobilization of frozen shoulder patients. This study was carried out in some selected private physiotherapy chamber, government and private Hospitals in Dhaka city. The study period was four months started from September to December 2015.Due to shortage of budget and time limitation researcher took 40 samples according to guide decision. Non-probability convenient sampling was used to collect data. A pretested, modified, interviewer administrated, semi-structured questionnaire was used and face to face interview was done. Maitland Grade Mobilization Technique was applied by qualified physiotherapist. Range of movement was measured by Goniometer. Visual analogue scale was used to scaling up pain. Only frozen shoulder patients were included for this research irrespective of age and sex. Data were entered into the computer into a data base in the software package. Statistical package for the social science (SPSS 20.0) using descriptive statistics such as frequency, distribution, range, mean, and percentage. All scores and percentages was computed and presented in tabular form, charts, and graphs as appropriate. As the sample collected conveniently and sample size too small, so it may differ from the actual parameter of the population. There is no homogeneity of the sample respondent which is not representing the actual population.

Result

Mean age of the respondents was 51.98 1.01 years. More than half of the patients represented from 40-50 year age group (Table 1). Female were quite double than male (Figure 1). About 40% of the respondents were service holder followed by 32.5% housewife, 12.5% business, 10% service holder and 5% were retried person (Table 2). About 65% patients were suffering from pain < 6 month, 50% were >13 month and 5% were 6 - 12 month respectively (Table 3). Forty percent patients took 15 - 28 session followed by 14 session 32.5% patients and 27.5% were >29 session (Table 4). About 35% patients had 61 - 80 degree, 32.5% had 30 - 60 degree of abduction (before treatment), with the mean abduction was 55.63 17.17 degree (Table 5). Table 6 shows 50% patients had 81 - 90 degree, 27.5% had 71 - 80 degree and 22.5% had 60 - 70 degree respectively with the mean abduction was 55.63 17.179 degree (after treatment) (Table 6). About 47.5% patients had 47.5% degree, 42.5% had 30 - 45 degree and 10% had 61 - 80 degree of external rotation (before treatment), with the mean external rotation was 49.25 12.937 degree (Table 7). Table 8 shows 40% patients had 81 - 90 degree, 32.5% had 71 - 80 degree and 27.5% had < 70 degree respectively with the mean external rotation was 77.15 10.086 degree (after treatment) (Table 8). Statistically significant association was found between type of treatment and affected shoulder ($p = 0.002 < 0.05$) (Table 9). Again statistically significant association was found between type of treatment and severity of pain (after treatment) ($p = 0.007 < 0.05$) (Table 10).

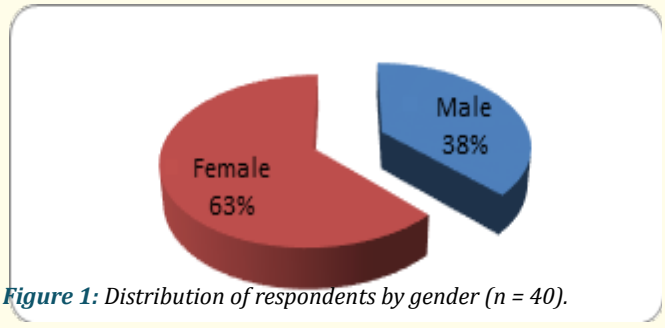

Figure 1: *Distribution of respondents by gender (n = 40).*

Age in years	Frequency	Percentage
40 - 50	21	52.5
51 - 60	11	27.5
61 - 70	8	20.0
Total	40	100
Mean ± SD 51.98 ± 1.01		

Table1: *Distribution of respondents by age (n = 40).*

Occupation	Frequency	Percentage
Housewife	13	32.5
Worker	4	10.0
Service holder	16	40.0
Business	5	12.5
Retried person	2	5.0
Total	40	100

Table 2: *Distribution of respondents by occupation (n = 40).*

Duration of pain	Frequency	Percentage
<6 months	26	65
6-12 months	2	5
>13 months	12	30
Total	40	100

Table 3: *Distribution of respondents by duration of pain (n = 40).*

Treatment duration	Frequency	Percentage
< 14 session	13	32.5
15 - 28 session	16	40
> 29 session	11	27.5
Total	40	100
Mean ± SD 23.75 ± 17.469		

Table 4: *Distribution of respondents by treatment duration (n = 40).*

Abduction (before treatment)	Frequency	Percentage
30 - 45 degree	13	32.5
46 - 60 degree	13	32.5
61 - 80 degree	14	35
Total	40	100
Mean ± SD 55.63 ± 17.17		

Table 5: *Distribution of respondents by abduction (before treatment) (n = 40).*

Abduction (after treatment)	Frequency	Percentage
60 - 70 degree	9	22.5
71 - 80 degree	11	27.5
81 - 90 degree	20	50
Total	40	100
Mean ± SD 55.63 ± 17.179		

Table 6: *Distribution of respondents by abduction (after treatment) (n = 40).*

External rotation (before treatment)	Frequency	Percentage
30 - 45 degree	17	42.5
46 - 60 degree	19	47.5
61 - 80 degree	4	10
Total	40	100
Mean ± SD 49.25 ± 12.937		

Table 7: *Distribution of respondents by external rotation (before treatment) (n=40).*

External rotation (after treatment)	Frequency	Percentage
> 70 degree	11	27.5
71 - 80 degree	13	32.5
81 - 90 degree	16	40
Total	40	100
Mean ± SD 77.15 ± 10.086		

Table 8: *Distribution of respondents by external rotation (after treatment) (n = 40).*

Type of treatment	Affected shoulder			Total	p-value
	Right shoulder	Left shoulder	Both shoulder		
Low grade mobilization	4	15	2	21	0.002
High grade mobilization	12	3	4	19	
Total	16	18	6	40	

Table 9: *Association between type of treatment and affected shoulder (n = 40).*

Type of treatment	Severity of pain (after treatment)				Total	p-value
	0	1 - 3	4 - 6	7 - 10		
Low grade mobilization	0	17	4	0	21	0.007
High grade mobilization	2	17	0	0	19	
Total	2	40	4	0	40	

Table 10: *Association between type of treatment and severity of pain (after treatment) (n=40).*

p value obtained from Pearson Chi-square (χ^2) test

Discussion

Our aim was to evaluate to determine the effectiveness of Maitland grade mobilization technique in patients with frozen shoulder. We usually use electrotherapy equipment like short wave diathermy, ultrasound therapy, TENS (transcutaneous electrical nerve stimulation), and LASER (light amplification by stimulated emission of radiations) to reduce/remove pain of frozen shoulder patients without any logical order and to increase range of movement sometimes we use active assisted or passive exercise. However, they probably offer little benefit [5-9]. Mostly these applications are adjunct to other treatment modalities like mobilization techniques or home exercise program [5-12]. Though frozen shoulder is considered as self-limiting condition in which physiotherapy work well [13-14]. Number of literature suggests that to regain the normal extensibility of the shoulder capsule, passive stretching of the shoulder capsule in all planes of motion by means of mobilization techniques has been recommended [6,7,10,11]. The international Maitland Teachers Association (IMTA) defines the Maitland concept as a process of examination, assessment, and treatment of neuromusculoskeletal disorder by manipulative physiotherapy [11]. Grades I and II of Maitland mobilization techniques are primarily used for treating joints limited by pain. Appropriate selection of mobilization technique for treatment can only take place after a thorough assessment and examination. Present study shows that the average age of the respondents was 51.98 1.012. Distribution of male was quite half than female. Of the respondents 40% were service holder, 32.5% housewife, 12.5% business, 10% service holder and 5% were retried person. But we did not find any similar findings searching google scholar and pubmed. We got 65% were suffering from pain <6 month, 50% were >13 month and 5% were 6 - 12 month respectively. This finding is similar to the findings of study carried out by the study Wadsworth CT., et al. and Ewald, A [15-16]. Study also reveals that the mean severity of pain 6.53 1.867 with a range from 4 to 10 (0 to 10 visual analog scale). Among them 52.5% of the respondent complains 4 - 6 grade pain, 37.5% complains 7 - 9 scale and 10% of the respondent complains 10 scales before treatment and the mean severity of pain 1.60 1.128 with a range from 0 to 5 (0 to 10 visual analog scale). Of them 5% of the respondents had 0 or no pain, 85% complains 1 - 3 scale and 5% of the respondent complains 4 - 6 scales after treatment. This finding is similar to the findings of study carried out by the study Kesson M and Atkin [17]. Study also found the statistically significant association between type of treatment with affected shoulder and severity of pain (after treatment) (0.002, 0.007). This finding is similar to the findings of study carried out by Wadsworth CT [15].

Conclusion

Maitland grade mobilization technique in patients with frozen shoulder was proven effective in terms of range of movement as well as severity of pain. Frozen shoulder should be managed by exercise. Physiotherapy is a good alternative to optimize the speed of recovery of frozen shoulder.

Bibliography

1. Uddin MM., *et al*. "Presentation of frozen shoulder among diabetic and non-diabetic patients". *Journal of Clinical Orthopaedics and Trauma* 5.4 (2014): 193-198.

2. Quillen DM., *et al*. "Acute shoulder injuries". *American Family Physician* 70.10 (2004): 1947-1954.

3. Neviaser J. "Adhesive capsulitis of the shoulder: a study of the pathological findings in periarthritis of the shoulder". *Journal of Bone and Joint Surgery* 27.2 (1945): 211-222.

4. Stam H. "Frozen Shoulder: A review of current concepts". *Physiotherapy* 80.9 (1994): 588-599.

5. Kisner C and Colby LA. "Therapeutic Exercises, 4th edition" (2002).

6. Mennel J. "Joint Pain. Diagnosis. Treatment Using Manipulative Techniques*". Litlle, Boston, Mass, USA* (1964).

7. Kaltenborn FM. "Manual Therapy for the Extremity Joints, Olaf Norlis Bokhandel, Oslo, Norway, 2nd edition" (1976).

8. Brotzman S and Wilk EK. "Clinical Orthopedic Rehabilitation". Mosby, Philadelphia, Pa, USA, 2nd edition (2003).

9. Munrray W. "The chronic frozen shoulder". *Physical Therapy Review* 40 (1960): 866.

10. Maitland GD. "Treatment of the glenohumeral joint by passive movement". *Physiotherapy* 69.1 (1983): 3-7.

11. Maitland GD. "Peripheral Manipulation". Butterworth- Heinemann, 2nd edition (1991).

12. Kibler WB. "Shoulder rehabilitation: principles and practice". *Medicine and Science in Sports and Exercise* 30.4 (1998): S40-S50.

13. Ozaki J., *et al*. "Recalcitrant chronic adhesive capsulitis of the shoulder. Role of contracture of the coracohumeral ligament and rotator interval in pathogenesis and treatment". *Journal of Bone and Joint Surgery* 71.10 (1989): 1511-1515.

14. Simmonds FA. "Shoulder pain with particular reference to the frozen shoulder". *The Journal of Bone and Joint Surgery* 31.3 (1949): 426-432.

15. Wadsworth CT. "Frozen shoulder". *Physical Therapy* 66.12 (1986): 1878-1883.

16. Ewald A. "Adhesive capsulitis: A review". *American Family Physician* 83.4 (2011): 417-422.

17. Kesson M and Atkin. "The shoulder: orthopedic medicine a practical approach". *Butterworth Heinemann, Oxford* (1998).

Volume 5 Issue 3 January 2017