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Original Research Article

A comparative study to assess the satisfaction with clinical outcome of the patients suffering from hemiplegic shoulder subluxation and undergoing rehabilitation with and without Bobath shoulder sling

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ABSTRACT

Background: Hemiplegic shoulder subluxation is one of the most common factor for post-stroke upper limb disability. There are various ways to assess its outcome during rehabilitation, but the assessment of patients' satisfaction with the shoulder support is often missed. This study was done to compare those patients' satisfaction with clinical outcome who were undergoing same rehabilitation programme for their hemiplegic shoulder subluxation with and without Bobath shoulder sling.
Methods: This prospective controlled interventional study was conducted on 30 patients of both sexes within the age group of 45-65 years with hemiplegic (duration <6 weeks) gleno-humeral subluxation (GHS). Screening of GHS was done by palpation. They were randomly divided in two groups of same number (15 in each group) and put on rehabilitation protocol with group 1 receiving Bobath shoulder Sling as support for subluxed shoulder and group 2 continuing without it. Patients' satisfaction on clinical outcome was measured with clinical global impression-improvement (CGI-I) scale. Data were collected at 6 weeks (first follow up-visit), 12 weeks (visit 2) and at the end of the study i.e. 24 weeks (visit 3).
Results: Statistically significant difference (p=0.003) in mean score of CGI-I at visit 1 suggested significant improvement for group 1 but no statistically significant difference in improvement was noticed between the groups at visit 2 (p=1.000) and visit 3 (p=0.724).
Conclusions: Use of support for hemiplegic shoulder is beneficial only during early days of rehabilitation, not on prolonged use.

Keywords: Clinical global impression-improvement scale, Hemiplegic shoulder subluxation

INTRODUCTION

Glenohumeral subluxation (GHS) is a frequent complication for patients with hemiplegia following stroke.[1-3] It is reported to be present in 17 to 81% of patients with hemiplegic shoulder, leading to several other complications.[2,3] Though the prevention of subluxation is the best way to manage these complications, proper treatment of already subluxed shoulder can also very well limit those long term disabilities. A good number of studies, which were done to assess the efficacy of different types of shoulder supports/slings for supporting the subluxed shoulder, showed variable and sometimes contradictory outcomes.[3-8] Most of those studies put emphasis mostly on the physical parameters, not on patients' response over their

perception regarding clinical improvements with or without the use of shoulder support alongside other rehabilitation measures. But this can easily be measured by Clinical global impression-improvement (CGI-I) scale.[9] Individual level perception regarding improvement from ongoing treatment should be looked into for adherence to and successful implementation of a management plan.

Therefore, to assess the patients' satisfaction with clinical outcome by CGI-I scale, this comparative study was done in post-stroke shoulder subluxation patients undergoing treatment with same rehabilitation programme with and without Bobath shoulder sling.

Aim of the study

To compare those patients' satisfaction with clinical outcome who were undergoing same rehabilitation programme with and without Bobath shoulder sling for their hemiplegic shoulder subluxation.

METHODS

This prospective controlled interventional study was initiated after receiving the approval from the Institutional Ethics Committee. All the stroke patients with post stroke shoulder subluxation receiving standardized medical and rehabilitation measures from June 2015 to August 2016 at the Department of Physical Medicine and Rehabilitation, R. G. Kar Medical College and Hospital, Kolkata, West Bengal, India were screened according to the following inclusion and exclusion criteria and divided randomly into two groups, i.e. group 1: managed with comprehensive rehabilitation programme with Bobath shoulder sling for supporting the subluxed shoulder and group 2: managed only with comprehensive rehabilitation programme (without Bobath shoulder Sling). Total 30 (22 male, 8 female) patients, 15 in each group, were available till the end of our study.

Inclusion criteria

First time stroke patients with post stroke hemiplegic shoulder, stable neurologic status with sufficient communicative ability, age between 45 years to 65 years, duration of stroke <6 weeks, clinical screening of affected shoulder showing palpable gap between the acromion and the humeral head were included.[1-3]

Exclusion criteria

Significant pain, restricting shoulder movements, prior shoulder disorder, surgery, bony pathology impairing the movement of shoulder joints, bilateral shoulder involvement, upper limb spasticity score >3 in modified Ashworth Scale and presence of central pain, complex regional pain syndrome, contractures or hemineglect in affected upper limb were excluded.

Measurement of patients' satisfaction by CGI-I scale

Patients' satisfaction with clinical outcome was judged by clinical global impression-improvement (CGI-I) scale. Each patient rated it after comparing present status to his/her condition during entry point of this study, how much had he/she changed in successive follow-ups: 0=not assessed, 1=very much improved, 2=much improved, 3=minimally improved, 4=no change, 5=minimally worse, 6=much worse, 7=very much worse, i.e. lower the score, better the improvement.

Data were collected at 6 weeks (first follow up: visit 1), 12 weeks (visit 2) and at the end of the study i.e., 24 weeks (visit 3) and analyzed with the help of IBM SPSS Statistics version 20.

RESULTS

Total number of participants in this study was initially 34. Among them 4 participants were excluded from the analysis as they did not appear for timely follow-ups. So the analysis was done for total 30 participants, 15 in each group. Master chart was prepared in Microsoft Office Excel 2007 and analyzed by IBM SPSS Statistics Version 20. Variables were tested for normal distribution by Shapiro-wilk test. As all the data were normally distributed, comparison over time within the same group was done by ANOVA and inter group comparison was done by Independent sample student t test. Confidence interval (CI) was taken as 95% and p value<0.05 was considered as statistically significant.

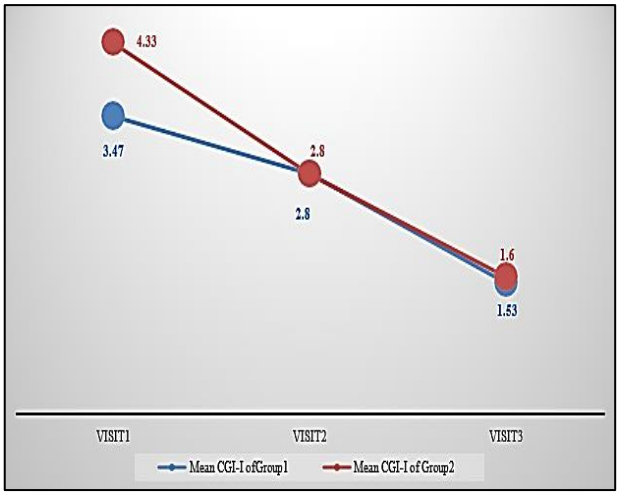

Figure 1: Line diagram presenting comparison of clinical global impression-improvement (CGI-I) scores between two groups at different follow up visits.

Table 1: Comparison of clinical global impression-improvement (CGI-I) scores between two groups at different follow up visits.

Follow up visits		Group 1 (n=15) CGI-I	Group 2 (n=15) CGI-I	P value (between groups)
Visit 1	Mean±SD	3.47±0.52	4.33±0.90	0.003
	Range	3-4	3-5	
Visit 2	Mean±SD	2.80±0.68	2.80±0.68	1.000
	Range	2-4	2-4	
Visit 3	Mean±SD	1.53±0.52	1.60±0.51	0.724
	Range	1-2	1-2	
P value (within the group)		<0.001	<0.001	

SD=Standard Deviation.

DISCUSSION

In our study intra-group improvement was noted in both groups from the baseline and at the end of the study ($p \leq 0.001$). But as per the aim of our study, inter group comparison of clinical global impression-improvement (CGI-I) scale showed statistically significant difference in mean score ($p=0.003$) at visit 1, i.e., first follow up at 6 weeks suggesting significant improvement in group 1 using Bobath shoulder sling compared to group 2. There was more sense of wellbeing among patients using limb support during that period. But there was no statistically significant difference in mean CGI-I score between the groups at visit 2 ($p=1.000$) and at the end of the study, i.e., visit 3 ($p=0.724$). All these values are suggesting that shoulder support/Bobath shoulder sling was beneficial in patients' global assessment in the early phase of stroke mostly due to the pattern of improvement in tractional pain and sense of wellbeing due to hemiplegic limb support but long term use of Bobath shoulder sling did not provide any extra advantage in terms of patients' satisfaction. This finding is supported by the study of Widar et al, named "Health-related quality of life in persons with long-term pain after a stroke", in which the results showed a lower Health-related quality of life and patients' satisfaction due to their tractional limb pain in early stages.[10] This finding was also supported by Paci et al, Jung et al, Nadler et al, Arya et al, suggesting the use of shoulder support should be restricted for a limited period in early stages of stroke and once sufficient motor recovery is achieved around shoulder girdle, it should be discontinued.[4-6,8]

Sample size was small. Outcome difference between different types of strokes, different age groups and gender were could not be compared. All these limitations are the future perspective of our study where patients' satisfaction with clinical outcome can be assessed and compared among different types of stroke patients in divided groups.

CONCLUSION

To conclude use of shoulder support in early days of hemiplegic shoulder is beneficial, but no significant advantage is gained on prolonged use as per the patients' satisfaction with clinical outcome.

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Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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