To assess the outcome of Intensive Physiotherapy given in Early Stage of Stroke

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Abstract

Introduction: Stroke associated with psychological as well as Sociological burden. Most recovery occurs in the first 30 days but that improvement may continue as long as 6 to 12 months after stroke. Early rehabilitation helps the patient to adapt new life and regain as much independence as possible, to reduce the disabilities and enable the patient to return to community.

Materials and methods: 20 In-patients of first acute stroke were randomly allocated in to Experimental and Control group. Each treatment regimen was applied for 30 - 40 min, 7 days a week during the first week after stroke. The main outcome measures were HSS and BBS.

Results: At 7th day, the experimental group had higher scores than the control group for HSS motor and BBS.

Discussion: HSS Motor function for the experimental group was -10.100 ± 3.479, control group -7.400 ±4.526. (p< 0.005). Experimental group has improved in BBS score with 14.500 ± 6.005 (p = 0.0001)

Conclusion: Earlier and intensive mobilization in the acute phase of stroke can accelerate recovery of motor performance and functional independence. All subjects, the total score of HSS and BBS was improved from day 1 to day 7.

Interpretation: Greater intensity of rehabilitation improves balance and functional recovery, providing further evidence that exercise therapy primarily induces treatment effects on the abilities at which intensive training is specially directed.

Keywords: Intensive Physiotherapy, Acute stage, Stroke, Hemiplegia, HSS, BBS

Introduction

WHO defines stroke as “rapidly developing clinical signs of focal (or global) disturbance of cerebral function, with symptoms lasting 24 hours or longer or leading to death, with no apparent cause other than of vascular origin”. The prevalence of stroke in India varies in different regions of the country and, ranges from 40 to 270 per 100 000 population. The ICMR study on Burden of Disease (2005) estimated that there has been an increase in the number of stroke cases in India during the last one and a half decades by 17.5%. Many studies 2-6 associate stroke care with psychological burden. A similar scenario is expected in India 8 because of...
increasing stroke incidence and minimal social support. The results of studies on motor recovery in stroke shows that most recovery occurs in the first 30 days but that improvement may continue as long as 6 to 12 months after stroke. Fifty present of stroke survivors will experience some residual impairment (physical and cognitive), which is devastating to the individual and their families. Most stroke survivors recover to some degree; many survivors are left with significant sensori-motor and cognitive deficits. These deficits produce long-term need for assistance from care givers and society.

Stroke rehabilitation consists of different physical or cognitive exercises that help stroke patients strengthen neurological functions and recover from neurological deficits by promoting natural recovery, preventing complications due to disabilities and adapting to disabilities. The recovery from stroke is often slow and incomplete, leading to partial or complete loss of locomotion, activities of daily living (ADL), cognition and communication skills. Early mobilization represents a simple, easy-to-deliver intervention, requiring little or no equipment. It is potentially deliverable to 85% of the acute stroke population. Early mobilization helps prevent complications e.g. DVT, skin breakdown contracture and pneumonia. Evidence has shown better orthostatic tolerance and earlier ambulation.

Early intervention is beneficial in patients with stroke, which also reduces the length of hospitalisation, hence reduces the burden on family member who received early rehabilitation. A controlled study of stroke rehabilitation, found that the degree of improvement correlated strongly with the amount of intensity of therapy. Another study where the patients treated intensively with physiotherapy twice per day showed significantly better functional recovery. Evidence to support specific physiotherapy interventions in the first few weeks after stroke is limited. So, it is important to see the effect of early intensive physiotherapy treatment in patients with acute hemiplegia.

Materials and methods

Study design: Prospective, interventional study, Randomized control trial. 20 consecutive patients admitted to Hospital diagnosed as stroke and referred for Physiotherapy were randomly allocated to an experimental group or the control group after satisfactory fulfilling the inclusion and exclusion criteria. The groups were assessed on day 1 as per the neurological examination and following outcomes/scales were measured; HSS and BBS.

A structured, custom-made physiotherapy program was planned and implemented for both the groups; however as per the deficits that arises from the assessment, depending on patient’s condition, minor alteration in the treatment was undertaken if necessary.

Group A were received intensive physiotherapy i.e. Physiotherapy treatment three times in a day (Experimental group). Group B were received physiotherapy only once in a day (Control group). Physiotherapy treatment was executed from day 1 to day 7 for both the groups. At the end of study the subjects were reassessed for neurological examination as well as for outcomes/scales to note the changes.

Results

1) Both the group showed improvement in HSS Motor score from day 1 to day 7, Control group from 33.50 ±7.531 to 26.10 ±8.812 Experimental group from 33.40± 5.502 to 23.30±7. On paired t test both the group showed statistically significant with difference in Control group -7.400 ±4.526 and Experimental group -10.100±3.479 and (p < 0.005).

2) Both the group showed improvement in BBS Score from day 1 to day 7, Control
group from 7.40 ± 10.762 to 17.30 ± 12.720 and experimental group from 6.10 ± 4.433 to 20.60 ± 9.454. On paired t test both the groups showed statistically significant. (p< 0.005).

![Image](https://example.com/image)

**Difference between both the group on HSS motor function and BBS**

**Discussion**

In the post-acute rehabilitation phase, more therapy accounts for better outcomes\textsuperscript{20, 21}. Although many guidelines recommend starting early mobilization, they do not specify how soon after onset or how much therapy is best, largely because the supporting evidence to guide recommendations is insufficient\textsuperscript{22-24}. Emphasizing outcomes management in clinical practice has increased the importance of quantitative evaluation using assessment scales. It is important to use neurological deficit scales that can accurately predict disability, to ensure adequate follow – up, and which can be used by all healthcare professionals. Such scales should be easily and quickly administered, responsive, valid and reliable. With all these positive factors as well as due to relative large amount of neurologic information obtained, the HSS used to measure strokes in a variety of vascular territories. It is a reliable scale to assess the acute motor function as well as other neurological deficits in stroke patients\textsuperscript{25}. Langhorne et al stated that More intensive physiotherapy in acute stroke was associated with a reduction in the deterioration of the deficits and enhance the rate of recovery along with improve functional status following stroke in acute stage\textsuperscript{26}. Feyset al showed that an early repetitive rehabilitation during the acute phase after a stroke resulted in a clinically meaningful and long-lasting effect on motor function in patients, even after 5 years\textsuperscript{27}.

Accurate evaluation of balance is important for prescribing appropriate mobility aids, determining the most effective treatment interventions, and identifying safe and unsafe activities after stroke. The BBS was identified as the most commonly used assessment tool across the continuum from acute care to community-based care\textsuperscript{28}.

A study done by Juhanisivenius et al stated that the Functional recovery of stroke, which was assessed with ADL and motor function showed intensive therapy had significantly better outcome in achieving functional independence for rehabilitation care following an acute stroke\textsuperscript{29}.

So far, little is known about the intensive therapy provided for stroke patients in acute care rehabilitation. The study aimed to deliver a higher intensity of exercises in experimental group. If therapy delivered to an intervention group does not differ from that delivered to controls, then “no effect” will be the finding but from the outcome measure it suggest that early and intensive Therapy has shown more improvement in experimental group.

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