

## Predictors of Acute, Rehabilitation and Total Length of Stay in Acute Stroke: A Prospective Cohort Study

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### Abstract

**Introduction:** The poststroke acute and rehabilitation length of stay (LOS) are key markers of stroke care efficiency. This study aimed to describe the characteristics and identify the predictors of poststroke acute, rehabilitation and total LOS. This study also defined a subgroup of patients as “short” LOS and compared its complication rates and functional outcomes in rehabilitation with a “long” acute LOS group. **Materials and Methods:** A prospective cohort study (n = 1277) was conducted in a dedicated rehabilitation unit within a tertiary academic acute hospital over a 5-year period between 2004 and 2009. The functional independence measure (FIM) was the primary functional outcome measure in the rehabilitation phase. A group with an acute LOS of less than 7 days was defined as “short” acute LOS. **Results:** Ischaemic strokes comprised 1019 (80%) of the cohort while the rest were haemorrhagic strokes. The mean acute and rehabilitation LOS were  $9 \pm 7$  days and  $18 \pm 10$  days, respectively. Haemorrhagic strokes and anterior circulation infarcts had significantly longer acute, rehabilitation and total LOS compared to posterior circulation and lacunar infarcts. The acute, rehabilitation and total LOS were significantly shorter for stroke admissions after 2007. There was poor correlation ( $r = 0.12$ ) between the acute and rehabilitation LOS. In multivariate analyses, stroke type was strongly associated with acute LOS, while rehabilitation admission FIM scores were significantly associated with rehabilitation LOS. Patients in the short acute LOS group had fewer medical complications and similar FIM efficacies compared to the longer acute LOS group. **Conclusion:** Consideration for stroke type and initial functional status will facilitate programme planning that has a better estimation of the LOS duration, allowing for more equitable resource distribution across the inpatient stroke continuum. We advocate earlier transfers of appropriate patients to rehabilitation units as this ensures rehabilitation efficacy is maintained while the development of medical complications is potentially minimised.

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Key words: Functional Outcomes, Haemorrhagic, Ischaemic

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