



Service Priorities and Programmes  
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**Can the Pre-discharge Level of Independence of Patients with Neurological Dysfunction be predicted upon hospital admission?**

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**Introduction**

Neurological sequelae affecting functional independence of patients with neurological dysfunction such as stroke, brain tumour and traumatic brain injury are common. If the pre-discharge level of independence of these patients can be predicted upon admission in the rehabilitation hospital, the planning of rehabilitation and discharge can be facilitated and the patients and their family members can be better informed of the prognosis.

**Objectives**

(1) To examine the functional outcomes of patients with neurological dysfunction upon admission and discharge; and (2) to identify the outcome predictors for functional independence of patients

**Methodology**

The functional outcomes of patients with neurological dysfunction were assessed with the Functional Independence Measure (FIM), Berg Balance Scale (BBS) and Modified Rivermead Mobility Index scores (MRMI). Correlations of patient's age, length of stay (LOS), admission FIM total score, BBS score, MRMI score with pre-discharge FIM total score were performed. Stepwise backward multiple linear regression analyses were then performed with pre-discharge FIM total score as outcome variable, and admission FIM total score, BBS and MRMI scores, age and length of stay as predictor variables.

**Result**

From September 2010 to August 2012, 170 patients with stroke, brain tumour or traumatic brain injury admitted to the MacLehose Medical Rehabilitation Centre were reviewed. Admission FIM total score, BBS and MRMI scores, and LOS had statistically significant correlations with pre-discharge FIM total scores (Pearson  $r=0.772$ ,  $0.562$ ,  $0.606$  and  $-0.363$  respectively,  $p<0.001$ ). However, scatterplots showed that there were curvilinear relationships between the admission FIM total score, BBS and MRMI scores and pre-discharge FIM total score. Three separate

multiple linear regression equations with quadratic terms of admission FIM total score, BBS and MRMI scores were created. The regression models of admission FIM total score, BBS score and MRMI score could account for 80.4%, 61.7% and 62.0% of the variance of pre-discharge FIM total scores respectively ( $p < 0.05$ ). Admission FIM total score was found to be the best outcome predictor of pre-discharge FIM total score. The use of admission FIM total score in predicting pre-discharge FIM total score has its limitations, as shown by large residuals from the regression line in the scatterplot. In future evaluation, standardized time points should be considered in the assessment of functional outcomes, instead of assessments conducted at admission and pre-discharge.