00372   Development and Validation of a Predictive Model for Early Functional Recovery in the Hip Fracture Population

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Aims: Our study aimed to analyse pre-op and post-operative day one (POD1) factors to develop and validate a predictive model that can prognosticate for rehabilitation outcomes within the early acute stage (post-operative day four (POD4)).

Methodology: In this longitudinal prospective study, derivative and validation data for the model was obtained from patients who were admitted to CGH between April-September 2016 and January-May 2017 respectively. Based on their POD4 ambulation status, patients were grouped into 'good recovery' (GR) or 'poor recovery' (PR) groups. Data pertaining to patient's baseline, injury and POD1 indicators were collected. These were analysed to develop and validate a predictive model.

Result: For the derivative cohort, 121 patients were included in the analysis. 41 patients (33.9%) were in the GR group. In multivariate analysis, these three factors remained significant ($p < 0.05$) - premorbid Parker Mobility Score of 6-9 (adjusted odds ratio (aOR) 4.83), $\leqslant$3 co-morbidities (aOR: 5.80) and able to stand on POD1 with minimal, standby or no assistance (aOR 3.17). Risk model analysis using these three factors yielded an Area under the Curve (AUC) value of 0.84. A final model stratifying patients to three levels was developed. Patients who attained all three factors were more likely to achieve GR with a positive predictive value (PPV) of 72.7%. Patients who attained one factor or had absence of these factors were more likely to have PR with a negative predictive value (NPV) of 91.8%. The remaining patients (attaining two factors) formed the third group whose early functional recovery cannot be predicted by the model. This model was successfully validated through the second dataset formed by 105 patients (PPV: 73.3%, NPV 86.1%).

Conclusion: Through this model, clinicians are able to predict a patient's POD4 ambulation status from as early as POD1. This provides valuable insight to guide clinical practice and discharge planning.