

Predictors of In-hospital Mortality in Stroke Patients

Ranasinghe V. S.¹ ✉, Gawarammana I. B.²

Abstract

In-hospital mortality is a good indicator to assess the efficacy of stroke care. Identifying the predictors of in-hospital mortality is important to advance the stroke outcome and plan the future strategies of stroke management. However, there is a lack of data on stroke mortality in Sri Lanka compared to other South Asian countries. Hence, this study was carried out to fill the existing knowledge gap in the Sri Lankan health care system. Two hundred and forty-six patients with confirmed stroke were prospectively observed throughout the hospital stay in Teaching Hospital Peradeniya to identify the possible predictors of in-hospital mortality. The diagnosis of stroke was established on the clinical history, examination, and neuroimaging. The differentiation of stroke into haemorrhagic and ischaemic types was based on computed tomography results. In all patients, demographic data, comorbidities (hypertension and diabetes mellitus), clinical signs (systolic blood pressure, diastolic blood pressure, on admission Glasgow Coma Scale (GCS) score), and imaging findings were recorded. Serum electrolyte test was performed in all stroke patients, and hyponatremia was defined if the serum Na⁺ level is < 131mmol/L. All patients were followed up throughout their hospital course, and the in-hospital mortality was recorded. In-hospital mortality was defined as the deaths which occurred due to stroke after 24 hours of hospital admission. The incidence of in-hospital mortality was 11.7% (95% confidence interval 8-16.4). The mean day of in-hospital deaths to occur was 5.9 days (SD±3.8 Min 2 Max 20). According to multivariate logistic regression analysis on admission, GCS score (Odds Ratio (OR)-0.71) and haemorrhagic stroke subtype (OR 5.12) predicted the in-hospital mortality. In contrast, demographic characteristics, comorbidities, systolic blood pressure, diastolic blood pressure, development of hyponatremia, and development of aspiration pneumonia did not predict in-hospital mortality. The Area under the curve of Receiver operating curve drawn for the on-admission GCS was 0.78 with a sensitivity of 96.31% and specificity of 41.38% for a patient presented with the GCS score of <10. On admission, GCS and haemorrhagic stroke were independent predictors of in-hospital mortality. Patients with on admission GCS <10 had a moderate predictive ability in predicting the in-hospital mortality. Thus, special attention should be given to patients with low GCS and haemorrhagic strokes to reduce rates of in-hospital mortality.

Keywords: *Glasgow coma scale, haemorrhagic stroke, in-hospital mortality*

¹ Department of Basic Sciences, Faculty of Allied Health Sciences, University of Peradeniya, Peradeniya, Sri Lanka

² Department of Medicine, Faculty of Medicine, University of Peradeniya, Peradeniya, Sri Lanka

✉ Corresponding author: vindyas@ahs.pdn.ac.lk