Low admission serum albumin as prognostic determinant of 30-day case fatality and adverse functional outcome following acute ischemic stroke

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Abstract

Introduction: Over 80% of stroke deaths occur in low-income and middle-income regions of the world. Identification of predictors of mortality is vital so that prompt therapeutic measures could be instituted to improve outcome. Previous studies have identified factors such as stroke severity, stroke type, older age, impairment of consciousness and hyperglycaemia as predictors of mortality for acute stroke but mortality remain high among patients hospitalized for acute stroke. The study objective was to determine the association between admission serum albumin levels and short-term outcome following acute ischaemic stroke in Nigerians.

Methods: Consecutive first-ever acute ischaemic stroke patients were prospectively enrolled between February 2009 and May 2010. Stroke severity at presentation was determined using National Institute of Heath Stroke Score (NIHSS). Admission serum chemistry including albumin, were measured. Patients were then followed up for 30 days and outcome measures applied at the end of the study were 30-day mortality and functional outcome using the Modified Rankin Scale (MRS) and graded as favourable(MRS 0-3) or unfavourable(MRS 4-6). Relationship between serum albumin and stroke outcome was determined.

Results: 75 acute stroke cases were studied. Mean age was 57.68 ± 12.4 years. Outcome was favourable in 48% while 30-day case fatality was 17.3%. The mean age (61.13years) of those with poor outcome was significantly higher than those with favourable outcome. Mean serum albumin (3.03g/dL) of those with favourable outcome was also significantly higher than (2.08g/dL) of those with unfavourable outcome (p=0.0001). Patients that died had significantly lower serum albumin (1.66g/dl) than survivors (p=0.0001).Receiver operating characteristics curve for optimal cut off point of serum albumin to predict survival or death within 30 days revealed area under the cure (AUC) of 0.870, p-value 0.0001, 95% C/I=0.759-0.982. Serum albumin of 1.55g /dL has sensitivity of 100% and specificity of 61.5%. NIHSS and serum albumin were predictors of poor outcome using multiple regression.