Predictors of Early Neurological Deterioration in Patients of Acute Ischemic Stroke with Special Reference to Blood Urea Nitrogen/Creatinine Ratio and Urine Specific Gravity

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Background

Stroke is a major cause of long- term disability and has potentially enormous emotional and socioeconomic consequences for patients, their families, and health services. Early neurological deterioration (END) occurs in about 20% to 40% of patients with ischemic stroke and results in increased mortality and functional disability. In recent studies relative dehydration has been found to be associated with END in patients with acute ischemic stroke.

Aims & Objectives

To study the factors useful for predicting early neurological deterioration in ischemic stroke patients.

Materials & Methods

Various parameters comprising demographic, clinical, laboratory and radiological variables along with stroke severity (NIHSS and GCS scores) were assessed and studied as predictors of END in patients with acute ischemic stroke. BUN/creatinine >15 and urine specific gravity >1.010 were studied as markers of relative dehydration contributing to END. RESULTS: A total of 114 patients were enrolled in this study. END was observed in 21.9% of the patients. NIHSS e" 12 at admission was found to be an independent risk factor for END. Amongst markers of relative dehydration, BUN/creatinine>15 at admission was found to be an independent risk factor for END, as compared to USG>1.010. Of the various radiological parameters that were studied in this study, only cerebral edema on cranial CT and size of hypodensity>1/3rd of the middle cerebral artery territory were observed to be independent risk factors for END.

Results

Our findings suggest that a BUN/Cr ratio > 15, at admission, is an independent risk factor for END in patients with acute ischemic stroke.

Conclusions

Dehydration being a treatable condition, the use of BUN/creatinine>15 as a marker of relative dehydration, can be helpful in detecting patients with dehydration early and thus play a role in preventing END.