

Association between Blood Urea Nitrogen/Creatinine Ratio and Mortality in Patients with Stroke

Mohammad Dehghani-Firoozabadi,¹ Toba Kazemi,^{*2} Omid Mehrpour³

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1. Department of Neurology, Birjand University Of Medical Sciences, Birjand, Iran
2. Department of Cardiology, Birjand Atherosclerosis and Coronary Artery Research Center, Birjand University of Medical Sciences, Birjand, Iran
3. Medical Toxicology and Drug Abuse Research Center, Birjand University of Medical Sciences, Birjand, Iran

Stroke is the third reason for deaths around the world [1]. Predisposing risk factors for cerebrovascular disorders are age, history of previous stroke, hypertension, diabetes, heart disease, dyslipidemia, and cigarette smoking, which are well known. A prospective study was conducted across a 30-month period commencing on 23rd September 2009 to evaluate the relationship between Blood BUN, creatinine (Cr), BUN/Cr ratio and mortality in patients with stroke. All patients with Stroke, admitted to the Vali-Asr Hospital (Birjand, Iran), were enrolled. Patient-specific demographic information, serum BUN, Cr, BUN/Cr ratio and outcome data related to each presentation was recorded. Blood BUN, creatinine (Cr), BUN/Cr in patients who died in hospital after admission with stroke and in patients who died through 3 month later after stroke compared with The group of patients who survived stroke. Among 586 stroke patients during this review period, 50.5% (n=296) were men. Mean age of the study group was 69.37 ± 14.28 years. Ischemic stroke was the most frequent subtype (70.6%). Most of the cases were over 65 years (66.7%), Hypertension (60.2%) and diabetes mellitus (48.6%) were the most common risk factors to stroke in this survey. In-hospital mortality was 8.5% (n=50). The study showed a significant increase in BUN in the intra hospital deceased patients (32.72 ± 41.6 mg/dl in dead, 32.72 ± 41.6 in survived, $p=0.005$) and 3 month later dead cases (20.50 ± 9.9 mg/dl in dead, 14.75 ± 8.1 in survived, $p=0.001$). Moreover BUN/Cr in dead patients was significantly higher than survived cases [20.75 ± 18.9 in dead, 12.72 ± 5.7 in survived at hospital discharge, $p<0.001$ and 17.36 ± 7.61 in dead, 12.46 ± 5.5 in survived at 3mo later, $p=0.007$]. It seems that non-survived patients suffered from dehydration as a cause of

hyperuremia in this study. Other studies proved that some factors such as glucose and BUN would increase in severe diseases such as severe poisoning, severe acute pancreatitis, and acute exacerbation of chronic obstructive pulmonary disease (COPD). Therefore, on one hand dehydration and hyperuremia in stroke should be in mind as a factor of severity of the stroke; on the other, dehydration, can affect blood viscosity and coagulability and it has been identified as a possible precipitant risk factor for acute ischemic stroke in the present study as well as other studies conducted by others [2, 3]. In our study, patients who succumbed to Stroke (early death or late death) had significantly higher mean BUN, BUN/Cr levels than those who survived. This correlation of hyperuremia and mortality suggests that it may be useful in guiding risk assessment and treatment of stroke. Management of dehydration and hyperuremia may have a useful role in the treatment of these patients too.

*Corresponding author: drtooba.kazemi@gmail.com

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