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Prevalence of hypernatremia and outcome in adult burns patients admitted at Chris Hani Baragwanath Burns Unit

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ABSTRACT

Background: Hypernatremia is defined as serum sodium concentration exceeding 145 mmol/L. Studies show a relationship between hypernatremia and mortality in general. There is only one study to our knowledge that has investigated the effect of hypernatremia on mortality in burns patients. The European based study, had a small sample size, which could potentially have impacted on the results. This study aims to determine the prevalence of hypernatremia, its association to increased mortality and impact on patient's length of stay in burns patients, admitted to the Chris Hani Baragwanath Academic Hospital (CHBAH) adult burns unit in Johannesburg, South Africa.

Methods: A retrospective study of adult patients admitted to CHBAH burns unit from January 2014 to December 2015 with a total burned surface area of 15% and above was conducted. Logistic regression was used to determine the association between hypernatremia and mortality. For categorical and continuous variables, the Pearson Chi-squared test and Student t test were used for data analysis respectively. Statistical analysis was performed using STATA software version 15 and a p value of < 0.05 was considered statistically significant.

Results: The total admissions to the unit during the 2 years period was 486, with a mortality of 103. Of the 247 patients who met the criteria for the study, 64 (25.9%) patients had hypernatremia. Mortality was significantly higher in the hypernatremia group (39/64, 60.9%) compared to the non-hypernatremia group (40/183, 21.9%), p-value<0.001. Of the 48 individuals with available blood culture results, 26 (54.2%) were positive.. Blood culture positivity was higher in the hypernatremic group (21/34, 61.8%) compared to the non-hypernatremic group (5/14, 35.7%) P-value<0.001. The median hospital stay for patients who developed hypernatremia was 13.5 days compared to 15 days among non-hypernatremia group.

Conclusions: The findings show that approximately one in four patients meeting the study criteria were hypernatremic. A close link between hypernatremia, sepsis and a high mortality was shown, suggesting that hypernatremia can be used as a prognostic indicator in burns patients.