

Thiamine supplementation in septic shock patients with alcohol use disorders

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Introduction:

Previous studies have shown alcohol-use disorders (AUDs) to be associated with increased sepsis-related mortality. As thiamine is an essential co-factor in aerobic mitochondrial metabolism and patients with AUDs are often thiamine deficient, we investigated practice patterns relating to thiamine administration to patients with AUDs presenting with septic shock and explored the association between receipt of thiamine and mortality.

Methods:

We performed a retrospective analysis of all patients presenting with septic shock between 2008 and 2014 at a single tertiary care center. We identified patients with (1) an AUD diagnosis based on ICD-9 codes, (2) documented blood cultures and use of antibiotics, (3) vasopressor dependency, and (4) serum lactate levels ≥ 4 mmol/L. We excluded those who received thiamine later than 48 hours of sepsis onset. The relationship between thiamine administration and mortality was analyzed via the Fisher's exact test.

Results:

We included a total of 53 patients. Thirty-four (64%) patients received thiamine. The median time to thiamine administration was 9 (IQR: 4 – 18) hours, and the median number of doses per hospital stay was 4 (IQR: 3 – 8). Twenty-nine (85%) patients received their first thiamine dose in the ICU. The initial thiamine prescription was most commonly parenteral (68%) and for 100 mg (88%). In those receiving thiamine, 15/34 (44%) died, compared to 15/19 (79%) of those not receiving thiamine, $p = 0.021$.

Conclusion:

In this study, we found that a considerable proportion of patients with AUDs admitted for septic shock did not receive thiamine. Thiamine administration in patients with AUDs and septic shock was associated with decreased mortality. We suspect that failure to administer thiamine in this patient population is related to a shift in clinician focus towards the septic insult and away from the AUD history, although further studies are needed to better understand this phenomenon.