

Clinical Factors Associated with hypokalemia after Acetaminophen Overdose: a Hospital-Based Study

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Background: Hypokalemia is an easily identifiable, clinically important but commonly neglected condition among patients with acetaminophen overdose.

Objective: The objectives of this study were to investigate the prevalence of hypokalemia in patients presenting to hospital after acetaminophen overdose, and to compare clinical characteristics among hypokalemic and normokalemic patients and to determine which clinical findings would be most predictive of hypokalemia in hospitalized patients after acetaminophen overdose.

Methods: This is a retrospective cohort study of hospital admissions for acute acetaminophen overdose was conducted over a period of 3 years from January 1, 2006 to December 31, 2008. Demographic data, clinical characteristics, and predictors of hypokalemia were compared with normokalemia among those patients. Hypokalemia was predefined by serum concentration <3.5 mmol/l. Pearson chi-square test and student's t test were used in univariate analysis while multiple logistic regression was used to identify factors associated with hypokalemia. SPSS 15 was used for data analysis.

Results: One hundred and ninety five patients were studied; their mean age was 23.05±8.12 years; 84.1% of them were females and 68.2% had hypokalemia. Hypokalemic patients significantly associated with a history of vomiting after ingestion (OR=6.07; 95% CI=3.07-12.01; P< 0.001), above 'high-risk' treatment line (OR=9.88; 95% CI=4.35-22.4; P< 0.001), acutely depressed mood (OR=19.5; 95% CI=8.8-43.2; P< 0.001), higher age (mean=24.1±8.1years; 95% CI= 22.7-25.5; P = 0.008), higher acetaminophen concentration (mean=95.74±73.8; 83.1-108.4, P< 0.001), higher amount of acetaminophen ingested (mean=13.93±10.7 g; 95% CI=12.1-15.8; P< 0.001), higher INR (mean=1.16±0.25; 95% CI=1.11-1.2; P=0.003), and higher serum bilirubin (mean=15.26±10.91 mmol/L; 95% CI=13.34-17.17;P=0.003). Multiple logistic regression showed that significant risk factors for hypokalemia

were seen among patients with history of vomiting after ingestion ($P = 0.006$), above 'high-risk' treatment line ($P= 0.03$), high acetaminophen concentration ($P= 0.006$) and acutely depressed mood ($P < 0.001$).

Conclusion: Hypokalemia was common among acute acetaminophen overdose. Clinical characteristics available at hospital admission can be used to identify patients at increased risk for hypokalemia. Supplemental potassium administration should be commenced as soon as possible after acute acetaminophen overdose.

Key Words: Acetaminophen, Hypokalemia, Potassium, Predictors, Overdose.