42. Initial Serum Lactate Predicts Adverse Cardiovascular Events in Emergency Department Patients with Bupropion Overdose

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Background: Bupropion can induce adverse cardiovascular events (ACVE) in overdose. Risk stratification is difficult due to delayed toxicity. Initial serum lactate has previously been associated with mortality in emergency department (ED) patients with heterogeneous drug overdoses and may be useful in predicting ACVE.

Research Question: Initial serum lactate value independently pre- dicts ACVE in adult ED patients with suspected bupropion overdose.

Methods: This is a secondary analysis of prospectively collected data via the Toxicology Investigators Consortium from April 15, 2015 through July 30, 2018. Patients > 18 years old with acute or acute-on-chronic bupropion exposure were included; patients with signs/symptoms unrelated to the exposure, and those with missing data, were excluded. The primary outcome was ACVE (myocardial injury, shock, ventricular dysrhythmia, or cardiac arrest). Secondary out-comes included ACVE components, death, intensive care unit admission, seizures, altered mental status, and QRS widening. A multivariable logistic regression model was created with lactate value and potential confounders as independent variables and ACVE as the dependent variable. The optimal lactate cutpoint was derived using ROC curves maximizing sensitivity and specificity. A new model was created using this value, and diagnostic test characteristics were calculated.

Results: Among seventy-three patients included, ACVE occurred in 19 (35.2%). The median initial serum lactate value was 1.8 (IQR: 0.9-3.4) mmol/L. Initial serum lactate value demonstrated an increased odds of ACVE in the logistic regression model (aOR 1.15, 95% CI 1.00-1.32). The optimal cutpoint of 5.2 mmol/L was independently predictive of ACVE (aOR 12.2, 95% CI 2.50-75.2). The specificity and negative predictive value of initial serum lactate > 5.2 mmol/L were 90.7% and 80.3%, respectively. Elevated initial lactate value was also associated with shock (P = 0.005) and ventricular dysrhythmias (P = 0.03).

Conclusion: Initial serum lactate value is useful in predicting which ED patients with bupropion