#297 Adam Shore   Advisor(s): Dr. Jennifer Chao M.D.

A case series of pediatric albuterol associated lactic acidosis

Introduction: Albuterol Associated Lactic Acidosis (AALA) has been identified in pediatric asthma patients. We aim to study the frequency and association of AALA with epinephrine and albuterol administration. Secondary aims are to correlate AALA with pH, pCO2, HCO3, Respiratory Rate (RR) and ED Length of Stay (LOS). Methods: A convenience sample of pediatric (2-18 yrs) status asthmaticus patients failing improvement after 3 albuterol nebulizations all requiring IV Magnesium who had venous blood gas and lactate. Patients with complex medical histories or requiring intubation in ED were excluded. Data were reported as medians and Interquartile Ranges, percentages with 95% Confidence Intervals, and group comparisons by Pearson Correlation Coefficients r with R2, or Mann-Whintney U with alpha=0.05, all tests 2-tailed. Results: Ninety-five patients met inclusion criteria. Median age 8 yrs, 60% male, 91.6% African American. 58% admitted to the Pediatrics Ward and 42% placed on observation. Patients received a median of 3 albuterol treatments and intramuscular epinephrine in 12.6%. Lactate ranged from 1.0 to 9.4 mmol/L, median 3.4 (2.4-5.0). Elevated lactate >2 in 80% (72-88%) and >5 in 23% (16-33%). We found a small (r=0.24, R2=0.06, p=0.019) correlation between the number of doses of albuterol and lactate but not for epinephrine. Elevations of lactate were poorly correlated with decreases in HCO3 (r=-0.308, R2=0.09, p=0.002) and PCO2 (r=-0.237, R2=0.06, p=0.021). No significant correlation was found between lactate with RR, pH, or LOS. With lactates above 5, we found a small but significant (p<0.001) decrease in HCO3 and no significant differences for: pH, PCO2, RR, or LOS. Conclusion: Elevations of lactate are common in pediatric status asthmaticus, loosely related to the number of albuterol treatments but not to epinephrine use. There was a small, non-clinically significant correlation of lactate elevation with HCO3 not affecting pH, RR or LOS.