SWSC 2020 On-Demand Meeting Abstracts

31. ADMISSION BASE DEFICIT IS SUPERIOR TO LACTATE IN DETERMINING HIGH RISK TRAUMA PATIENTS

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Background: Base Deficit (BD) and lactate have both been used as indicators of shock and resuscitation, with advocates for both indices. There have been limited head to head comparisons. This study was done to test the hypothesis that while correlated, BD is superior to lactate in determining high risk trauma patients.

Methods: A prospective, observational study of trauma patients at an ACS-verified level I center from 3/2014-12/2018 was performed. An arterial blood gas (ABG) with BD and lactate, was included in the lab panel for the highest level of activation. Blood was obtained from a femoral stick with a separate ABG in the event of a venous sample. Additional data included demographics, systolic blood pressure (SBP), injury severity score (ISS), blood transfusion requirements and outcomes. Patients were excluded for absent data or if the ABG and blood draw were >10 minutes apart. BD and Lactate were modeled continuously and categorically; BD: normal/mild (2 to -5), moderate (-6 to -9) and severe (

Results: 2272 patients were included in analysis. BD and lactate were moderately correlated ($r2=0.61$ $p<0.001$). On univariate regression, both BD and lactate correlated with transfusion requirement and mortality ($p<0.001$), but on multivariate regression, only BD was associated with transfusion requirement and mortality (OR=1.2, $p<0.001$; OR=1.1, $p<0.001$, respectively). Categorically, BD discriminated better than lactate for decreased BP, higher ISS, increased transfusion requirement and mortality.

Conclusion: While BD and lactate levels are closely correlated following injury,   BD is superior to lactate in assessing mortality and requirement for blood transfusion. BD is superior in identifying and discriminating high risk trauma patients.

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	Normal/Mild	Moderate	Severe
Base Deficit (n)	1561	481	230
SBP	124	110*	92*
Lactate	3	5*	11*
Blood (1st 24h)	1	4*	12*
ISS	15	19*	22*
ICU LOS (survivors)	4	6*	8*
Mortality	11%	15%*	37%*
Lactate (n)	939	602	731
SBP	127	118^	107^
Base Deficit	-2	-4^	-8^
Blood (1st 24h)	1	2^	6^
ISS	14	17^	19^
ICU LOS (survivors)	4	4	6^
Mortality	11%	10%	23%^

*$p < 0.05$ versus normal BD; ^$p < 0.05$ versus normal lactate