

Normal Serum Lactate Values in Various Adult Populations: A Literature Review

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Introduction: There are many causes for serum lactate to elevate, but literature and clinical practice predominantly focus on elevated lactate signifying sepsis or septic shock. Elevated lactate levels indicate tissue hypoperfusion in sepsis; an early diagnostic marker that guides treatment. Currently, a single range of values (0.5-2.2 mmol/L (venous) and 0.5-1.6 mmol/L (arterial)) is accepted as normal for the entire population.

Purpose: To investigate lactate values in various populations to determine if the accepted clinical lactate reference range accurately represents populations outside of the acutely ill adult.

Methods: Utilization of Wichita State University SmartSearch tool that mines multiple databases including, but not limited to, Science Direct, CINAHL, MEDLINE, and Cochrane Library. Articles included between January 15, 1979 and November 1, 2017.

Results: Forty studies were identified and reviewed. It is well known that lactate levels are elevated in acutely ill populations, including sepsis and trauma. Lactate levels were also elevated in other, less studied, populations including exercising, gestational diabetes, transient loss of consciousness, and individuals with migraines. There were discrepancies within the laboring population.

Conclusion: One range of normal lactate is not reliable; the clinical lactate reference range does not accurately represent populations that are not acutely ill. Lactate in various populations compared to a normal population was found to be elevated. Causes for elevated serum lactate levels are not well studied or recognized outside of an acutely ill population. When evaluating lactate values, there should be consideration for variation in lactate levels outside of the acutely ill population.