

Serial blood lactate concentrations in systemically ill dogs.

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BACKGROUND: Lactate concentration often is quantified in systemically ill dogs and interpreted based on human data. To our knowledge, there are no published clinical studies evaluating serial lactate concentrations as a prognostic indicator in ill dogs.

OBJECTIVES: Our objective was to perform a prospective study, using multivariate analysis, to determine whether serial lactate concentrations were associated with outcome in ill dogs requiring intravenous fluids. **METHODS:** Eighty sick dogs had lactate concentrations evaluated, using an analyzer that measures lactate in the plasma fraction of heparinized whole blood, at 0 hours and 6 hours after initiation of treatment. Severity of illness and outcome (survivor, nonsurvivor) were determined by reviewing the patient's record 2 weeks after admission. Lactate concentrations, age, body weight, gender, and severity of illness were evaluated using multivariate analysis to determine their effects on outcome.

RESULTS: Dogs with lactate concentrations greater than the reference interval at 6 hours were 16 times (95% confidence interval = 2.32-112.71 times, $P < .01$) more likely not to survive compared to dogs with lactate concentrations within the reference interval. Lactate concentrations above the reference interval at 0 hours were not significantly related to outcome. However, hyperlactatemia that did not improve by $\geq 50\%$ within 6 hours was significantly associated with mortality ($P = .024$).

CONCLUSION: Dogs with a lactate concentration higher than the reference interval at 6 hours were more likely not to survive. These results indicate an association between lactate concentration and outcome and emphasize the importance of serial lactate concentrations in evaluating prognosis.

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