LACTATE?

LACK OF PROGNOSTIC VALUE OF LACTATE CLEARANCE IN A CENTER WITH A SEVERE SEPSIS PROTOCOL

Demla V, Marik PE, Parekh R, Manini AF, Weingart SD

Background

Lactate is often considered a prognostic marker in patients with severe sepsis. Lactate clearance has also been associated with better outcomes and decreased mortality in this patient population.

However, there may have been treatment differences in the care of patients who were able to clear their lactate versus those who could not.

Objective

We aimed to evaluate whether lactate clearance retains its prognostic ability in a cohort of patients who all received aggressive, protocolized care.

Methods

We conducted a retrospective chart review, of patients age ≥ 18 years, presenting to the ED of an urban teaching hospital. Included patients screened positive for severe sepsis by one of two criteria: presumed sepsis plus either (1) initial venous lactate level of ≥4 (meq/L) or (2) SBP <90 mmHg after 20 ml/kg intravenous crystalloid.

All patients who screened positive received resuscitation according to an institutional non-invasive sepsis protocol designed to optimize oxygen delivery and result in lactate clearance. Lactate clearance was considered a ≥10% decline if original lactate was >2.0 or no rise in lactate when the original was ≤2.0.

Results

Between January 2011 and June 2012, 199 patients received protocolized care for severe sepsis. Thirty-nine patients expired during their hospital course (18% mortality). The mean arrival lactate was 4.8 (± 3.0) in the survivors compared to 7.3 (± 4.4) in those patients who died ($p<0.0001$).

Lactates ≥4 were significantly associated with increased mortality ($p<0.05$). However, the patients who achieved lactate clearance did not have significantly improved survival when compared to those patients in whom clearance was not achieved ($p=.60$).

In addition, patients with rebound in lactate ≥4, after initial clearance, showed a 10-fold increase in mortality ($p<.05$).

Why are we tracking lactate clearance or $ScvO_2$?

Conclusions

In this single-center retrospective study of patients receiving aggressive, protocolized care for severe sepsis, the initial lactate was a prognostic indicator for mortality. However, we found no association between lactate clearance and improved survival. These data suggest that aggressive resuscitative therapy to clear lactate may eliminate the prognostic value of serial lactate testing.

Thanks for your Attention!