Point-of-care lactate measuring may be a predictive tool for identifying high-risk trauma patients and occult shock because it provides information beyond that of vital signs and mechanism of injury as it may help predict the level of oxygen debt accumulation and need for resuscitation” Bjerkvig et al (2016).

Abstract:

Hemorrhagic shock is both a local and systemic disorder. In the context of systemic effects, blood loss may lead to levels of reduced oxygen delivery (DO2) sufficient to cause tissue ischemia. Similar to other physiologic debts such as sleep, it is not possible to incur a significant oxygen debt and suffer no consequences for lack of timely repayment.

While the linkage between oxygen debt and traditional organ failure (renal, hepatic, lung, and circulation) has been long recognized, we should consider failure in two additional linked and very dynamic organ systems, the endothelium and blood. These systems are very sensitive to oxygen debt and at risk for failing, having further implications on all other organ systems. The degree of damage to the endothelium is largely modulated by the degree of oxygen
debt. Thus hypoperfusion is believed to begin a cascade of events leading to acute traumatic coagulopathy (ATC). This combination of oxygen debt driven endothelial damage and ATC might be considered collectively as “blood failure” due to the highly connected networks between these drivers.

This article presents the implications of oxygen debt for remote damage control resuscitation strategies, such as permissive hypotension and hemostatic resuscitation. We review the impact of whole blood resuscitation and red blood cell efficacy in mitigation of oxygen debt.

At last, this article recognizes the need for simple and durable, lightweight equipment that can detect the adequacy of tissue DO2 and thus patient needs for resuscitative care.

Point-of-care lactate measuring may be a predictive tool for identifying high-risk trauma patients and occult shock because it provides information beyond that of vital signs and mechanism of injury as it may help predict the level of oxygen debt accumulation and need for resuscitation. Serial measurements may also be valuable as a tool in guiding resuscitative efforts.

Full Text Reference:


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