



We aimed to perform a descriptive study, aiming to elucidate whether IO needles can be used to evaluate troponin I in a porcine model of human shock” Eriksson et al (2015).

Abstract:

BACKGROUND: Determination of troponin I may be important in the management of the critically ill patient. In medical emergencies, especially when vascular access is difficult to achieve, the use of intraosseous (IO) needles is recommended. We aimed to perform a descriptive study, aiming to elucidate whether IO needles can be used to evaluate troponin I in a porcine model of human shock.

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METHODS: Eight pigs were anesthetized and challenged with a 6 hours continuous intravenous infusion of E. coli endotoxin. An IO needle (EZ-IO®) was inserted in the proximal tibia of each pig. Circulatory variables were monitored and troponin I was sampled from arterial and venous blood and also from bone marrow aspirates.

RESULTS: Circulatory deterioration developed in all endotoxemic animals, which was reflected by a profound deterioration of left ventricular stroke work index. Troponin I levels were nearly identical in both arterial, venous, and IO samples during the first hour of endotoxemia. At 1 hour, all mean troponin I levels had more than doubled as compared to

baseline. The troponin I levels continued to increase over time and were markedly elevated versus baseline levels during the 2nd and 6th hours, regardless of sampling site. At 3 hours, IO troponin I reached a plateau, whereas troponin I in both arterial and venous blood continued to increase.

CONCLUSIONS: This investigation has shown that troponin I can be analyzed in bone marrow aspirates in a shock model. This may be useful in medical emergencies, where cardiac damage is suspected to be involved. The levels of IO troponin I increased during the first 3 hours of shock, after which it remained at a high level. During this initial period there was, in parallel, a progressive circulatory deterioration.

Reference:

Eriksson, M., Strandberg, G., Lipcsey, M. and Larsson, A. (2015) Troponin I can be Determined in Intraosseous Aspirates in a Porcine Shock Model. *Clinical Laboratory*. 61(7), p.825-9.

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