



“We aimed to investigate whether comparable antibiotic concentrations could be reached with intraosseous and intravenous administration during septic shock” Strandberg et al (2015).

Reference:

Strandberg, G., Larsson, A., Lipcsey, M., Michalek, J. and Eriksson, M. (2015) Intraosseous and intravenous administration of antibiotics yields comparable plasma concentrations during experimental septic shock. *Acta Anaesthesiologica Scandinavica*. January 5th. .

Comparison of intraosseous and intravenous antibiotic administration [#ivteam](http://ctt.ec/Daf24+@ivteam)

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Abstract:

BACKGROUND: We aimed to investigate whether comparable antibiotic concentrations could be reached with intraosseous and intravenous administration during septic shock.

METHODS: In this randomized, prospective experimental study conducted at an animal research laboratory at the University Hospital of Uppsala, eight anesthetized pigs, weighing 21.2 to 29.1 kg (mean: 25.2 ± 2.3 kg), received endotoxin infusion at $4 \mu\text{g}/\text{kg}/\text{h}$ for 6 h. At the onset of clinical shock, alternatively after 3 h of endotoxemia, they received $75 \text{ mg}/\text{kg}$ of

cefotaxime and 7 mg/kg of gentamicin either in a proximal tibial intraosseous catheter or in a peripheral intravenous catheter. Mixed venous samples were taken after 5, 15, 30, 60, 120 and 180 min and analyzed for antibiotic concentrations.

RESULTS: For both antibiotics, plasma concentrations after intraosseous and intravenous administration followed similar curves throughout the observation period, and peak concentrations were comparable. Mean concentration area under the curve (AUC mg × h/l) for cefotaxime was 108.1 ± 19.5 after intraosseous and 116.5 ± 11.1 after intravenous administration; ratio 0.93, (95% CI 0.71-1.19). Mean AUC for gentamicin was 28.1 ± 6.8 for intraosseous and 32.2 ± 3.5 for intravenous administration; ratio 0.87 (95% CI 0.62-1.19).

CONCLUSIONS: In this porcine septic shock model, intraosseous and intravenous administration of gentamicin and cefotaxime yielded comparable concentrations. In an emergency, intraosseous administration of these antibiotics may be considered in severe infections when venous access is difficult.

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