

This study was performed to assess the efficacy of i.o. administration of contrast agents for enhanced computed tomography (CT) imaging of the chest and abdomen” Cohen et al (2015).

Reference:

Cohen, J., Duncan, L., Triner, W., Rea, J., Siskin, G. and King, C. (2015) Comparison of COMPUTED TOMOGRAPHY Image Quality Using Intravenous vs. Intraosseous Contrast Administration in Swine. The Journal of Emergency Medicine. June 10th. .

Abstract:

**BACKGROUND:** Vascular access is essential in managing patients with significant injuries. It is required for medications, fluids, blood products, and radiographic contrast administration. Generally, this is accomplished through peripheral intravenous (i.v.) cannulation. In some patients, however, i.v. cannulation may be difficult or impossible. Intraosseous (i.o.) access is an acceptable alternative for many uses during resuscitation. However, adequacy of vascular enhancement with i.o. administration of contrast has not been studied.

**OBJECTIVES:** This study was performed to assess the efficacy of i.o. administration of contrast agents for enhanced computed tomography (CT) imaging of the chest and abdomen.

**METHODS:** We carried out a crossover study in mature mini-swine with peripheral i.v. and i.o. access established. Intraosseous access was obtained in the proximal humerus with fluoroscopic confirmation. Each animal underwent two trauma-protocol CT scans successively using the i.v. or i.o. routes of contrast administration. Wash-out between studies was established. The order for route of administration was randomized. Images were evaluated for adequacy of enhancement by two blinded board-certified radiologists.

**RESULTS:** All images obtained with successful administration of i.o. contrast were judged adequately enhanced, whereas two from the i.v. route were judged to be inadequate by at least one of the radiologists. Two occurrences of failed i.o. needle placement occurred. One animal had complete contrast extravasation resulting in inadequate opacification.

**CONCLUSIONS:** In this model, injection of contrast through a proximal humerus i.o. resulted in adequate enhancement of trauma-protocol CT images. Our results suggest that i.o. administration of contrast merits further investigation of its potential utility in patients



when i.v. access would delay diagnostic evaluation.

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