Intraosseous (IO) access is an alternative method of medication and fluid delivery which is not associated with life-threatening complications and can be inserted faster than CVCs” Lawson et al (2019).

Abstract:
BACKGROUND: Central venous catheters are often used to administer hypertonic saline (HTS) but might be associated with serious complications. Intraosseous (IO) access is an alternative method of medication and fluid delivery which is not associated with life-threatening complications and can be inserted faster than CVCs.

METHODS: A prospective case series was conducted on critically ill neurological patients that did not have central venous access, and for whom 3% HTS was indicated. Nonverbal indicators of pain were measured using the critical care pain observation tool. The pain score and serum sodium levels were collected at baseline, at 2, 6, 12, 18, and 24 hours after administration of 3% HTS using IO access. The area surrounding the IO insertion site was monitored for needle placement, extravasation, and tissue damage.

RESULTS: Five patients were enrolled. Three had an IO placed in the proximal humerus and 2 in the proximal tibia. Most patients did not have nonverbal indicators of pain during insertion and initial bolus. Serum sodium levels increased appropriately, as determined by the care providers. There were no cases of device dislodgement, extravasation, infection, soft tissue injury, or other local complications.

CONCLUSIONS: In this prospective case series, IO administration of 3% HTS was feasible, well-tolerated on the basis of nonverbal indicators of pain in the majority of patients and resulted in an appropriate rise in serum sodium levels. IO fills a niche among vascular access options for HTS, in emergent neurological situations when central venous access is not readily available or peripheral intravenous access is difficult to obtain.

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