Abstract:

Introduction: Emergency vascular access is rarely required during neonatal resuscitation. We aimed to analyze frequency of use, success, and complication rates of intraosseous (IO) vascular access in neonates at a single tertiary neonatal intensive care unit.

Method: We performed a questionnaire-based survey among pediatric residents, pediatricians, and neonatologists, asking for the use of IO access in neonates between April 1st, 2015, and April 30th, 2020. We then reviewed electronic patient charts of all identified neonates for demographic data as well as indications and complications of IO puncture.

Results: All 41 questionnaires were answered. Nine physicians had attempted IO access 15 times in a total of 12 neonates. Among them were eight term neonates, three preterm neonates, and one former extreme preterm neonate at a post-menstrual age of 42 weeks (m:f = 6:6). The overall success rate was 75%. IO access was attempted primarily during post-natal resuscitation (11/12 neonates, 91.7%) and after unsuccessful peripheral venous puncture (8/12 neonates, 66.7%). It was used to administer adrenaline, fluid and/or blood, and emergency sedation after intubation. Minor short-term complications were reported in three of nine successful IO punctures (33.3%).

Discussion: Over the study period of 61 months, IO access was rarely attempted during neonatal resuscitation. Our success rate was lower than reported elsewhere, suggesting that IO puncture may be more challenging in neonates than in older infants and children. No severe short-term complications occurred.

Reference: