We sought to characterize the use of IO access in pediatric patients who sustained trauma in the combat setting” Schauer et al 92019).

Abstract:

BACKGROUND: Vascular access in critically ill pediatric patients can be challenging with delays potentially leading to worse outcomes. Intraosseous (IO) access has a low rate of complications and can be utilized to administer lifesaving medications. Combat medics are trained to treat adults but may also be required to treat children in the deployed setting. Vascular access in children can be challenging, especially in a hypovolemic state. There are limited data on prehospital lifesaving interventions in children in the combat setting. We sought to characterize the use of IO access in pediatric patients who sustained trauma in the combat setting.

METHODS: We queried the Department of Defense Trauma Registry for all pediatric patients admitted to fixed-facilities and forward surgical teams in Iraq and Afghanistan from January 2007 to January 2016. Within that population, we searched for all subjects with a documented prehospital IO or intravenous (IV) access obtained. Subjects with both an IO and IV documented were placed into the IO category. We separated subjects by age groupings: younger than 1, 1 to 4, 5 to 9, 10 to 14, and 15 to 17 years.

RESULTS: During the study period, there were 3439 subjects 17 years or younger. There were 177 in the IO cohort and 803 in the IV cohort. Most subjects in the IO cohort were in the 10-
to 14-year-old age group (35.6%), male (79.1%), located in Afghanistan (95.5%), and injured by explosive (52.0%), with lower survival rates than the IV cohort (68.9% vs 90.7%, $P < 0.001$). Hemostatic dressing application, tourniquet application, intubation, cardiopulmonary resuscitation, sedative administration, ketamine administration, and paralytic administration were all higher in the IO cohort. CONCLUSIONS: Pediatric IO placement in the prehospital setting occurred infrequently. Pediatric subjects receiving an IO had higher injury severity scores and higher mortality rates compared with those who received an IV only. Intraosseous use appears to be used more often in critically ill pediatric subjects.

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