Abstract:

Background: It is challenging to establish peripheral intravenous access in adult critically patients. This study aims to compare the success rate of the first attempt, procedure time, operator satisfaction with the used devices, pain score, and complications between intraosseous (IO) access and central venous catheterization (CVC) in critically ill Chinese patients.

Methods: In this prospective clustered randomized controlled trial, eight hospitals were randomly divided into either the IO group or the CVC group. Patients who needed emergency vascular access were included. From April 1, 2017 to December 31, 2018, each center included 12 patients. We recorded the data mentioned above.

Results: A total of 96 patients were enrolled in the study. There were no statistically significant differences between the two groups regarding sex, age, body mass index, or operator satisfaction with the used devices. The success rates of the first attempt and the procedure time were statistically significant between the IO group and the CVC group (91.7% vs. 50.0%, P<0.001; 52.0 seconds vs. 900.0 seconds, P<0.001). During the study, 32 patients were conscious. There was no statistically significant difference between the two groups regarding the pain score associated with insertion. There were statistically significant differences between the two groups regarding the pain score associated with IO or CVC infusion (1.5 vs. 0.0, P=0.044). Complications were not observed in the two groups.

Conclusions: IO access is a safe, rapid, and effective technique for gaining vascular access in critically ill adults with inaccessible peripheral veins in the emergency departments.

Reference: