البحث السابع

Endocavitary versus Linear Array High-Frequency Probe in Ultrasound-Guided Supraclavicular Subclavian Vein Central Access

Maged Labib Boules

Accepted for publication in October 2018 in Anesthesia essays and researches journal

Abstract

Background: Vascular access is a top priority in the critically ill patients. Cannulation – venous and/or arterial – is the first step in any emergency situation. Ultrasound (US)-guided vascular cannulation was found to have a higher success rate and a decreased incidence of mechanical complications as compared with the landmark one. **Aim:** This study aims to compare subclavian vein (SCV) access through supraclavicular (SC) approach by endocavitary (EC) probe technique versus linear array high-frequency probe technique. **Settings and Design:** A prospective, randomized controlled study conducted on 60 patients. **Patients and Methods:** Study was carried out on 60 adult patients presenting for the surgical intensive care unit in Fayoum University Hospital. Patients were classified into two groups: Group (A) (n = 30): Catheter was inserted using the EC probe and Group (B) (n = 30): Catheter was inserted using the linear array high-frequency probe. **Statistical Analysis Used:** Student's t-test was applied for calculation of normally distributed variables and Mann–Whitney U-test for nonnormally distributed variables. Categorical data between the groups were compared using Chi-squared test. $P < 0.05$ indicated a statistically significant difference. **Results:** The frequency of successful cannulation of the SCV at

first attempt was significantly higher in Group A compared to Group B (P = 0.044). The number of attempts and the time needed for venous access were significantly lower in Group A compared to Group B (P = 0.038, <0.001 respectively). No significant difference was found regarding the incidence of posterior wall puncture, arterial puncture, or hematoma, (P = 0.671, 0.055, 1 respectively). **Conclusion:** The use of EC probe technique for Subclavian venous access through the SC approach significantly increased the success rate compared to the linear array high-frequency probe.

Keywords: Endocavitary probe, subclavian vein cannulation, ultrasound