

Abstract:

BACKGROUND AND AIMS: We devised a guard which can be slid and fixed over the central venous puncture needle at a desired length (measured through ultrasound) preventing the needle from penetrating deeper into the skin beyond this guard. This randomized, single blinded, controlled study was designed to evaluate the success of ultrasound guided internal jugular vein (IJV) cannulation using measured guided needle with guard in terms of success and occurrence of complications.

MATERIAL AND METHODS: After ethical approval and written informed consent from the patients ultrasound-guided right-sided IJV cannulation was done with a conventional puncture needle (length of 6.4 cm) in the control group (n = 210) and with a conventional puncture needle with a guard fixed proximal to the bevel at a distance equal to the distance between the skin entry point and the midpoint of IJV measured with the help of USG in the study group (n = 210). The primary outcome studied was the number of attempts for successful cannulation. The secondary outcomes studied were complications and ease of cannulation.

RESULTS: 419 patients were randomized into control (n = 209) and study groups (210). Successful IJV cannulation in the first attempt (primary endpoint) in the study group was significantly higher compared to the control group (98.6 vs. 85.7%, P = 0.007). Posterior venous wall puncture was reduced in the study group, that is, 0.5% (1/210) compared to control group, that is, 8.61% (18/209) (P = 0.001). Common carotid artery puncture was 7.18% (15/209) in control group and 0% (0/210) in study group (P = 0.001). Operators rated better ease in study group (P < 0.001).

CONCLUSIONS: The use of measured guided needle with guard significantly improved the accuracy, success and ease of USG guided IJV cannulation and decreased complications.

Reference:

Arya, V., Gupta, D., Agarwal, A., Paul, M. and Mishra, P. (2020) Comparative evaluation of success of ultrasound-guided internal jugular vein cannulation using needle with guard: A randomized, controlled study. *Journal of Anaesthesiology, Clinical Pharmacology*. 36(1), p.57-61. doi: 10.4103/joacp.JOACP_305_18.