

The objective of this study was to identify which transducer orientation, longitudinal or transverse, is better for imaging the axillary vein with ultrasound” He et al (2017).

Abstract:

BACKGROUND: The axillary vein is an easily accessible vessel that can be used for ultrasound-guided central vascular access and offers an alternative to the internal jugular and subclavian veins. The objective of this study was to identify which transducer orientation, longitudinal or transverse, is better for imaging the axillary vein with ultrasound.

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METHODS: We analyzed 236 patients who had undergone central venous cannulation of axillary vein in this retrospective study. Patients were divided into two groups, the longitudinal approach group (n=120) and transverse approach group (n=116). Recorded the one-attempt success rate, operation time, arterial puncture rate and pneumothorax rate. We perform chest radiography to confirm pneumothorax on all patients. We compared the one-attempt success rate, operation time, arterial puncture rate and pneumothorax rate between the two groups.

RESULTS: The two groups were comparable with clinical characters of patients. The overall success rates of the longitudinal group and the transverse group were both 100%. The rate of one-attempt success in the longitudinal approach group is higher than the transverse approach group (91.7% vs. 82.8%, $P=0.040$). The transverse approach group had shorter operation time than the longitudinal group (184.7 ± 8.1 vs. 287.5 ± 19.6 seconds, $P=0.000$). The two groups had lower postoperative complications. Arterial puncture occurred in 1 of 120 longitudinal and 2 of 116 transverse attempts and this difference was no significant ($P=0.541$). No pneumothorax occurred in the two groups.

CONCLUSIONS: The longitudinal approach during ultrasound-guided axillary vein

cannulation is associated with greater one-attempt success rate compared with the transverse approach by experienced operators. The transverse approach has shorter operation time. The two groups have lower postoperative complications and are comparable with pneumothorax and arterial puncture.

Reference:

He, Y.Z., Zhong, M., Wu, W., Song, J.Q. and Zhu, D.M. (2017) A comparison of longitudinal and transverse approaches to ultrasound-guided axillary vein cannulation by experienced operators. *Journal of Thoracic Disease*. 9(4), p.1133-1139.
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