

Emergency.

Proper Angle of Sono-guided Central Venous Line Insertion

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Received: November 2015; Accepted: February 2016

Abstract: Introduction: Determining the proper angle for inserting central venous catheter (CV line) is of great importance for decreasing the complications and increasing success rate. The present study was designed to determine the proper angle of needle insertion for internal jugular vein catheterization.

Methods: In the present case series study, candidate patients for catheterization of the right internal jugular vein under guidance of ultrasonography were studied. At the time of proper placing of the catheter, photograph was taken and Auto Cad 2014 software was used to measure the angles of the needle in the sagittal and axial planes, as well as patient's head rotation.

Results: 114 patients with the mean age of 56.96 \pm 14.71 years were evaluated (68.4% male). The most common indications of catheterization were hemodialysis (55.3%) and shock state (24.6%). The mean angles of needle insertion were 102.15 \pm 6.80 for axial plane, 36.21 \pm 3.12 for sagittal plane and the mean head rotation angle was 40.49 \pm 5.09.

Conclusion: Based on the results of the present study it seems that CV line insertion under the angles 102.15 \pm 6.80 degrees in the axial plane, 36.21 \pm 3.12 in the sagittal plane and 40.49 \pm 5.09 head rotation yield satisfactory results.

Keywords: Central venous catheters; vascular access devices; ultrasonography; emergencies; catheterization