

We compared the needle with the angiocath for ultrasound-guided central venous catheterization in pediatric patients concerning accuracy and easiness” Song et al (2015).

Reference:

Song, I.K., Lee, J.H., Kang, J.E., Oh, H.W., Kim, H.S., Park, H.P. and Kim, J.T. (2015) Comparison of central venous catheterization techniques in pediatric patients: needle vs angiocath. Paediatric Anaesthesia. August 6th. .

Abstract:

BACKGROUND: A needle or an angiocath has been generally used as a route for inserting a guide wire during central venous catheterization. We compared the needle with the angiocath for ultrasound-guided central venous catheterization in pediatric patients concerning accuracy and easiness.

METHODS: One hundred and thirty-two patients aged between 1 day and 5 years were randomized into the needle and the angiocath groups. The study was separately carried out in two age groups: newborns vs infants and children. The primary outcome was time to successful insertion of the guide wire. Secondary outcomes including other time variables (time to 1st successful puncture of the vein, time between 1st successful puncture of the vein and successful insertion of the guide wire, total time to successful central venous catheterization), frequency variables (number of the puncture attempts, number of the guide wire insertion attempts), success rates (1st successful puncture rate, 1st successful guide wire insertion rate), and complications.

RESULTS: There were no statistically significant differences in time and frequency variables, success rates, and complications between both the age groups. Time to 1st successful puncture of the vein (36.8 ± 31.7 vs 19.8 ± 27.1 s; 95% CI of mean difference 2.2-31.8; $P = 0.03$) and number of puncture attempts (1.6 ± 0.7 vs 1.3 ± 0.8 ; $P = 0.02$) were significantly greater in newborns with the needle, whereas with the angiocath, the number of puncture attempts was larger in newborns than in infants and children (1.7 ± 1.2 vs 1.2 ± 0.7 ; $P = 0.02$).

CONCLUSION: The angiocath showed no superiority over the needle for ultrasound-guided central venous catheterization in pediatric patients. Regardless of the needle or the angiocath, puncture of the vein was more difficult in newborns than in infants and children.

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