



Intravenous literature: Kayashima, K., Imai, K., Sozen, R. and Hammer, G. (2012) Ultrasound detection of guidewires in-plane during pediatric central venous catheterization. Paediatric Anaesthesia. Aug 29. .

Abstract:

**OBJECTIVE/AIM:** To assess the usefulness of longitudinal ultrasound images of guidewires for pediatric central venous catheter (CVC) placement.

**BACKGROUND:** To avoid arterial placement of a CVC, it is important to ensure that the guidewires are in the internal jugular vein (IJV) before inserting the dilators. Ultrasound confirmation of the guidewire position may eliminate accidental arterial dilation during CVC cannulation.

**METHODS:** Fifty pediatric patients undergoing general endotracheal anesthesia for cardiovascular surgery were enrolled. The mean  $\hat{\pm}$  sd value for age was  $14.8 \hat{\pm} 16.8$  months; height,  $69.1 \hat{\pm} 14.6$  cm; and weight,  $7.1 \hat{\pm} 3.2$  kg. Longitudinal ultrasound images of guidewires in or around the right IJV during pediatric CVC placement were acquired using an L10-5 MHz probe (TiTAN<sup>®</sup> ; SonoSite Co., Tokyo, Japan), with the neck of the patient fully extended and the head turned 15-30 degree to the left.

**RESULTS:** In 42 (84%) patients, guidewires were visible in the lumen of the IJV. However, in 8 (16%) patients, guidewires were not visible. Longitudinal imaging of guidewires was achieved with high probability (100%) in children in whom the distance from the clavicle to the angle of the mandible was more than 59 mm, in whom the distance from the clavicle to the puncture site was more than 30 mm, or in children taller than 65 cm. All cannulations were confirmed to be CVCs by chest radiography.

**CONCLUSIONS:** To confirm the insertion of dilators into veins in children, we recommend that longitudinal images of the guidewires should be initially acquired.





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