

Workshop on ultrasound-guided vascular access in infants

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Abstract: Femoral and internal jugular veins collapse by the approaching needle in neonates. This disadvantage is not true of the subclavian and brachiocephalic veins as they are fixed to the clavicular fascia. The major disadvantage of the infraclavicular cannulation of the subclavian vein via an US probe placed in the supraclavicular region is the invisibility of the advancing needle over a significant distance due to the US shadow of the clavicle. This disadvantage is not true of the supraclavicular IP cannulation of the longitudinally viewed brachiocephalic vein also via an US probe placed in the supraclavicular region. This enables the operator to observe the advancement of the inserted needle via the entire distance. The supraclavicular IP cannulation of the right brachiocephalic vein is significantly more difficult in around one third of neonates as compared to the left one. In this case the vein seems to disappear quickly behind the sternoclavicular joint on its steep caudad course to the superior vena cava which makes it invisible via a linear US probe. This can already be predicted as such by prescanning the vein if only a circular structure i.e. the initial part of the right brachiocephalic vein can be obtained sonographically.

This workshop will start with 3 power-point presentations demonstrating the various options of US-guided central venous cannulations in infants including a lot of images and videoclips.

The participants will then be able to practice the sonoanatomy on children and to perform out-of-plane as well as in-plane vascular cannulation techniques on various phantoms.

After the workshop the participants should have a thorough understanding of the vascular sonoanatomy of the neck/shoulder region in children. They should also be familiar with the in-plane as well as out-of-plane vascular cannulation techniques including a good hand-eye coordination.