A procedure is defined as ultrasound-assisted when ultrasound scanning is used to verify the presence and position of a suitable target vessel (or any anatomical variations or disease) before needle insertion, without real-time ultrasound needle guidance.

A procedure is defined as ultrasound-guided when ultrasound scanning is used to verify the presence and position of a suitable target vessel before skin puncture and real-time ultrasound imaging is used to guide the needle tip into the vessel.
The short axis view, or short axis view in an ultrasound imaging approach, shows that, instead of the relationship between the plane of the probe and the axis of the vessel, it is the relationship between the plane of the probe and the long axis of the vessel.

In the short axis view, the plane of the probe is perpendicular to the plane of the array of transducer elements within the probe, providing a short axis view of the needle, translating as a hyperbolic dot.

As the use of ultrasound is particularly common for central venous cannulation, we adopted a new approach: where, regardless of the vessel entry site, there should be strict observation of the needle tip into the vessel.

Application of ultrasound to vascular access is an ultrasound imaging approach that describes the relationship between the plane of the probe and the axis of the vessel. In the short axis view, the plane of the probe is perpendicular to the axis of the vessel.

The short axis view is obtained by directly visualising the needle from below, i.e. looking at the needle shaft in a transverse plane perpendicular to the plane of the probe. As the needle progresses towards the target, the needle shaft is visualised as a hyperbolic dot.

The long axis view, or long axis view in an ultrasound imaging approach, is obtained by looking at the needle shaft as if it were at an oblique angle to the plane of the array of transducer elements within the probe, providing a long axis view of the needle.

In the long axis view, the plane of the probe is approximately parallel to the long axis of the vessel.

The ultrasound equipment used in vascular access placement has dramatically reduced the number of early and delayed complications such as catheter-related thrombosis, which drove the GRADE recommendation (Supplemental Digital Content 3, http://links.lww.com/EJA/A280). We will adopt this historical definition of late complications such as catheter-related infection or thrombosis, limited solely to the act of vascular access, and not to the perioperative period and the use of ultrasound equipment ready for use. These guidelines will hopefully help the clinician to understand the added value of ultrasound guidance in vascular access placement, both clinical practice and research.

As regards the visualisation of the needle during the cannulation of other vessels, evidence is generally weak as regards the added value of ultrasound during the cannulation of other vessels, except for peripherally inserted central lines. Nevertheless, we recommend that the above definitions be used in both elective and emergency settings.

General recommendations

(1) Short axis view: where, regardless of the vessel entry site, the plane of the probe is perpendicular to the plane of the array of transducer elements within the probe, providing a short axis view of the needle, translating as a hyperbolic dot.

(2) Long axis view: where, regardless of the vessel entry site, the plane of the probe is approximately parallel to the long axis of the vessel.

(3) Ultrasound-assisted: where, regardless of the vessel entry site, the ultrasound equipment is used to guide the needle tip into the vessel.
GUIDELINES

European Society of Anaesthesiology guidelines on peri-operative use of ultrasound-guided for vascular access (PERSEUS vascular access)

Massimo Lamperti, Daniele Guerino Biasucci, Nicola Diera, Mauro Pitrivi, Christian Breschan, Davide Valab, Matteo Subert, Vittorio Tsiakali, Andris Macas, Jean-Pierre Estebe, Rigo Fuzier, Emmanuel Boselli and Philip Hopkins

This guideline is accompanied by the following Invited Commentary:

Brauch ma das wirklich?

European Society of Anaesthesiology guidelines on peri-operative use of ultrasound-guided for vascular access (PERSEUS vascular access)

Massimo Lamperti, Daniele Guerino Biasucci, Nicola Diera, Mauro Pitrivi, Christian Breschan, Davide Valab, Matteo Subert, Vittorio Tsiakali, Andris Macas, Jean-Pierre Estebe, Rigo Fuzier, Emmanuel Boselli and Philip Hopkins

Früher haben wir das auch ohne US gemacht...
Kernaussage: Ultraschall führt zu...

- geringerer Komplikationsrate
  - Mechanische Komplikationen (Pressen, Blutung, Infektionen)
  - Infektionen
  - Pneumothorax
- mehr Erfolg beim ersten Versuch
- schnellere Punktion und Kanülierung
- bei fast allen Punktionsorten
- CAVE: Evidenzgrad nur mittel gut (meist B-C)
Pre-Scan

Real time cannulation

Confirmation and identification of complications

Vena jugularis interna

Vena brachio-cephalica
Arteria femoralis

Periphere Venen

Was noch?
Ablaufen

Pre-Scan

Real time cannulation

Confirmation and identification of complications

thomas.hamp@meduniwien.ac.at