



Talking about cost-effectiveness and quality in the care of patients with peripheral venous access: PIVC vs Mini-Midline

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Introduction

- PIVC are a crucial element of today's infusion therapy and regular tool in clinical practice. Up to 85% of hospitalized patients require a PIVC during their stay. (Marsh et al., 2017; Van Loon et al., 2019; Chen et al., 2020).
- 67-69% of PIVC are prematurely withdrawn due to failures before the end of the treatment. (Chico-Padron et al., 2011; Marsh et al., 2015; Enes et al., 2016).
- **PROBLEM:** Vessel health preservation and DIVA patients (Bahl A, Johnson S, Alsbrooks K, Mares A, Gala S, Hoerauf K., 2021).
- Traditional method of vein palpation for cannulation is unsuccessful in DIVA and **INVOLVES** more than two failed attempts, pain, complications, morbidity and vessel quality reduction.
- Emergence and use of LPC or "*mini-midline*".

Every patient is different



But in our daily practice we can find situations like these . . .





LPC/mini-midline

PIVC

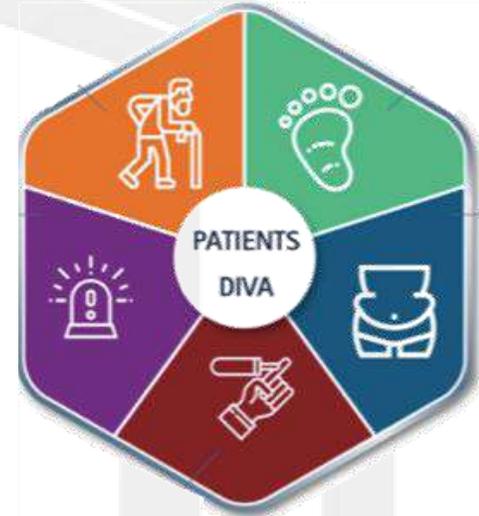
- Duration*: <48h, 2-7 days
- Length: 3-6 cm
- Intrahospital use.
- Easy dislodgment, infiltration, phlebitis. . .
- Insertion: blind, US.

LPC

- Duration*: >7 days
- Length: 6-15 cm
- Intra/extra-hospital use.
- Less risk of dislodgment, thrombosis, infiltration . . .
- Insertion: US

Midline

- Duration: >6 weeks
- Length: >15 cm
- Intra/extra-hospital use.
- Less risks of dislodgment, infiltration, malfunction, failure . . .
- Insertion: US



*(3.1 days PIVC and LPC 5.4 days. Bahl, A., Hijazi, M., Chen, N.W., Clavette-Lachapelle, L. and Price, J., 2019).

Our goal

- To compare PIVC *versus* LPC, in patients with poor venous access and peripheral IV treatment, in terms of satisfaction, reduction in the number of punctures, preservation of venous vessels, pain, dwell time and cost.

Methodology

- 52 patients were analysed as case reports to included in our training/teaching program.
- Prospective observational study.
- Inclusion criteria:
 - Adults.
 - Patients with previous PIVC and 2 unsuccessful attempts, DIVA was known.
 - Peripheral IV treatment.
 - Treatment duration: up to 10 days.
 - Intra-hospitalized patients.
- Exclusion criteria:
 - Patients susceptible of CICC.
- Informed consent were obtained.
- DIVA scale evaluation.
- SIPUA protocol (Safe Insertion Peripheral Ultrasound Access).
- LPC indwell time in our facility?.

Materials



PIVC

- 20 Ga 1.1 x 30 mm
- 22 Ga 0.9 x 25 mm



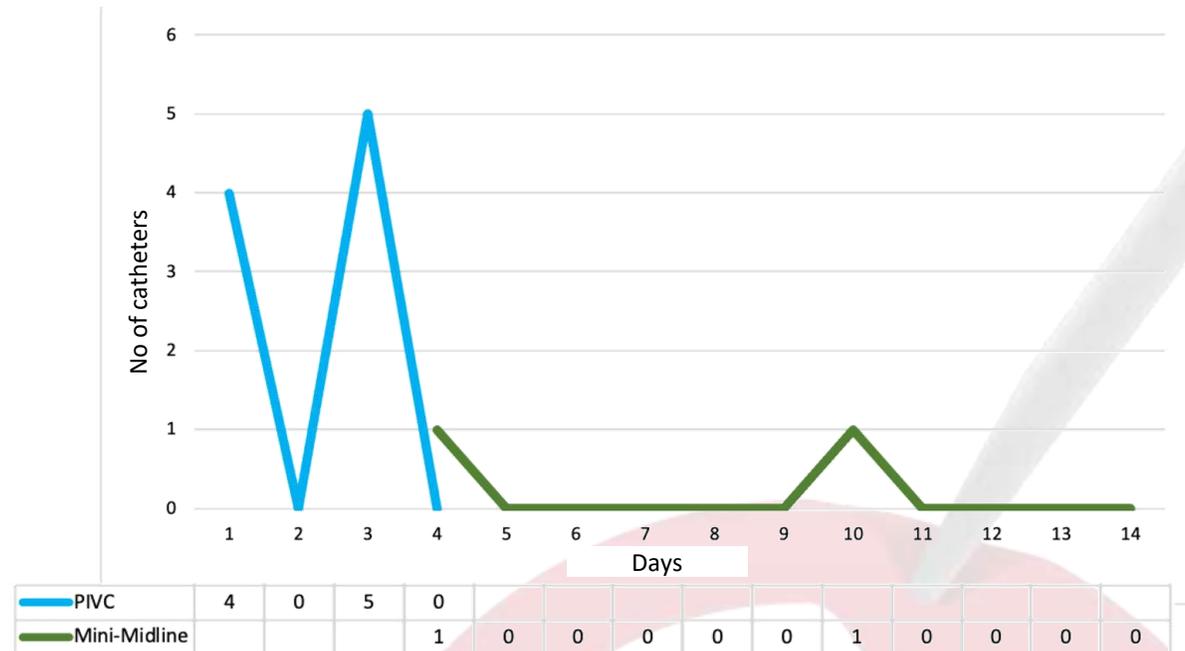
LPC/MINI-MIDLINE

Leader-cath, over the wire,
3 Fr, 8 cm

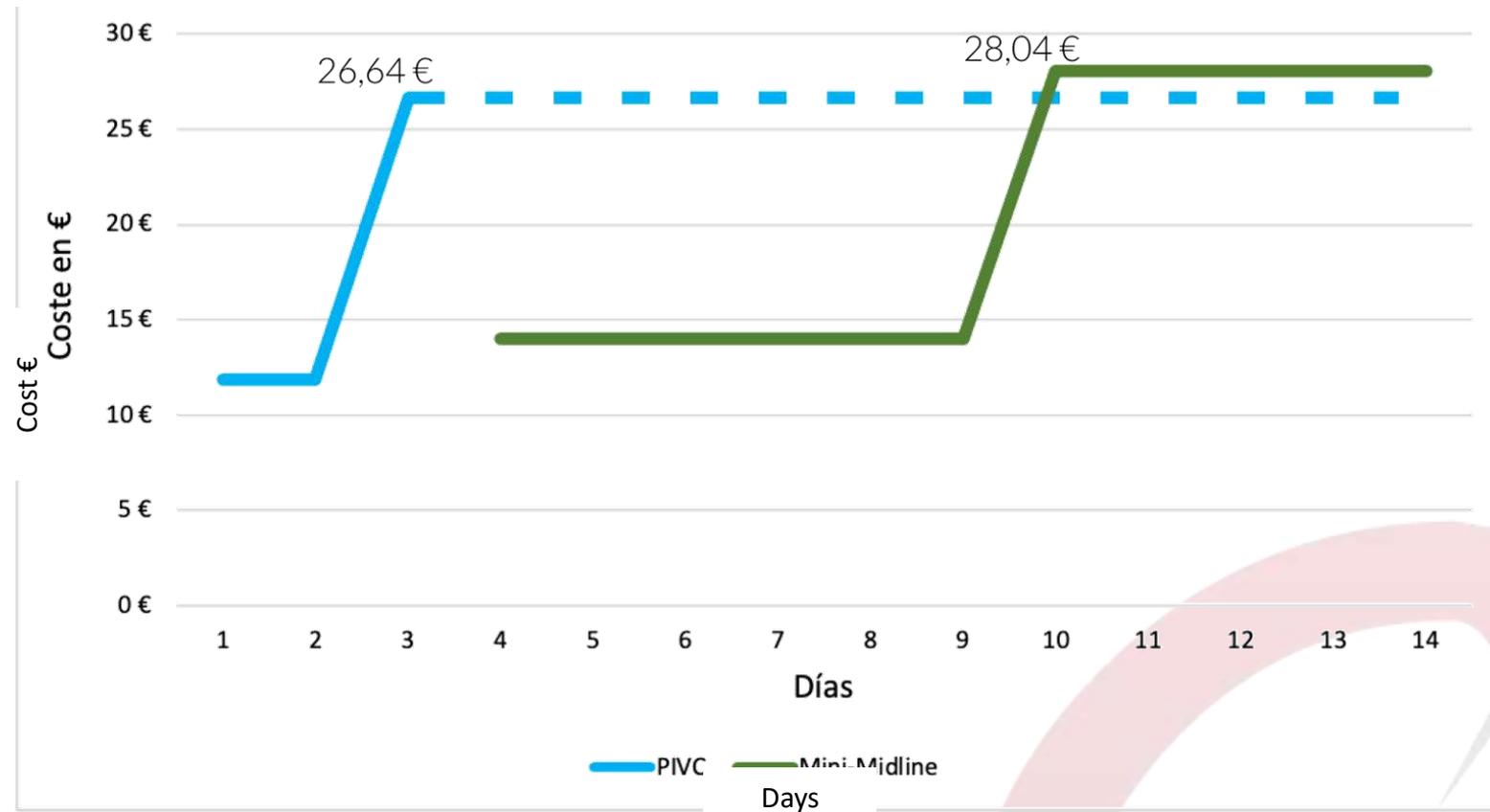
Some examples and results

- **PACIENT 1:** Haematology. Length of hospital stay 32 days for treatment administration. VAD: temporal CICC. CT finished and CICC removal (malpositioned, edema and pain in the insertion site). Treatment: only painkillers and peripheral ATB. Clinical decision: PIVC until hospital discharge.

- **DIVA score 3:** at the beginning.
- **DIVA score 4-5:** after multiple attempts of PIVC.

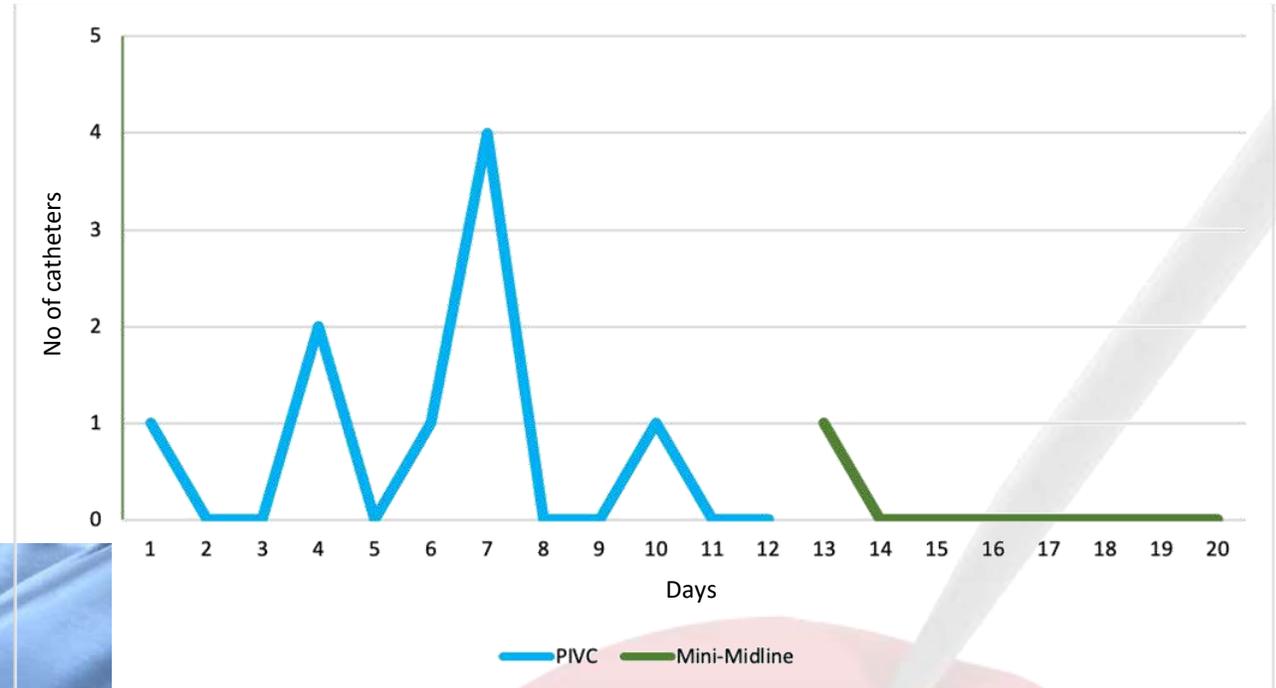


Total expenditure by device



Some examples and results

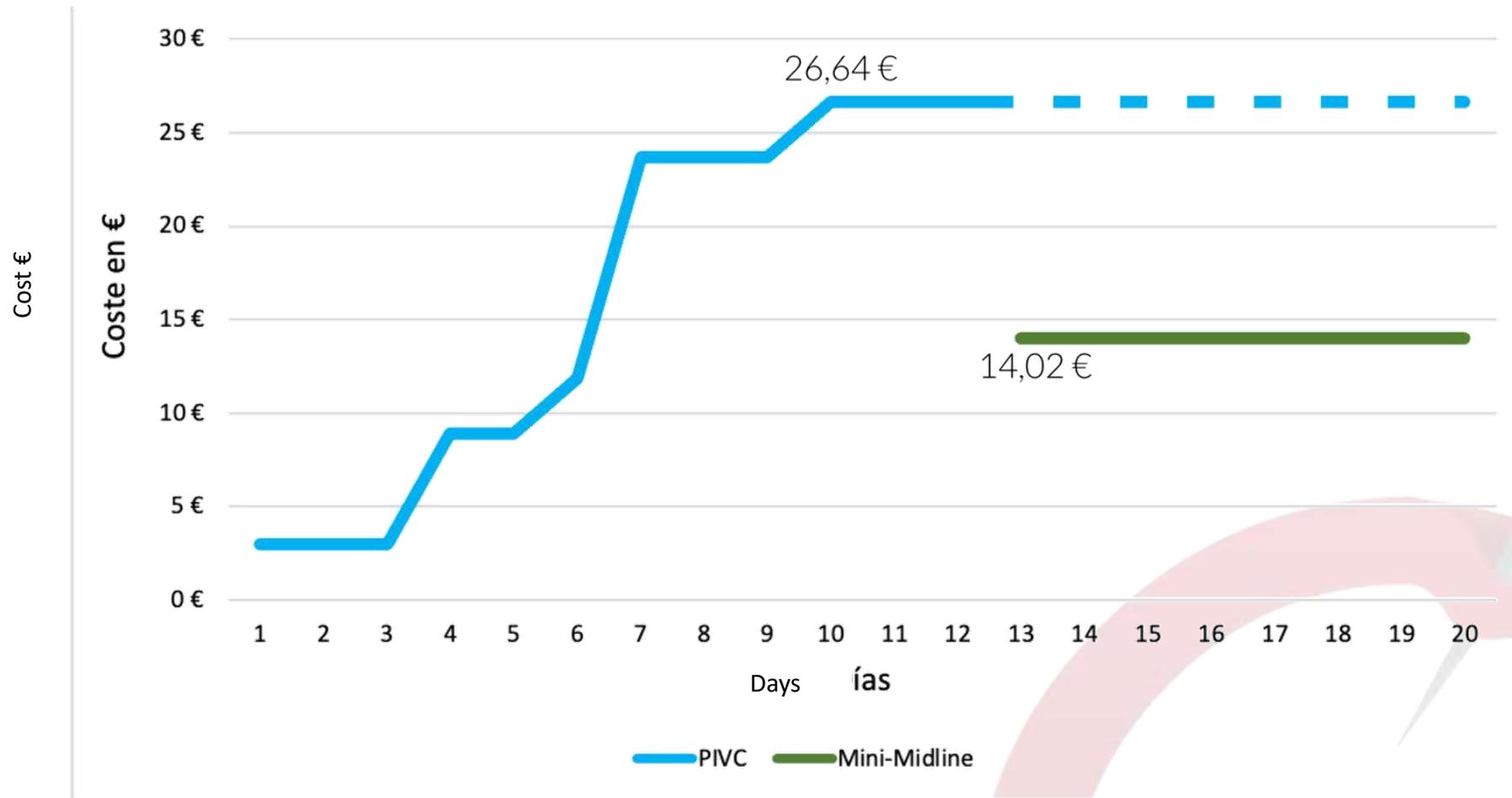
- **PACIENT 2:** Cardiology . Length of hospital stay 20 days for treatment administration. VAD: PIVC. Treatment: diuretics and peripheral ATB. Edemas upper/lower limbs. DIVA patient. Clinical decision: PIVC until hospital discharge.



- **DIVA score 3:** at the beginning.
- **DIVA score 4-5:** after multiple attempts of PIVC.



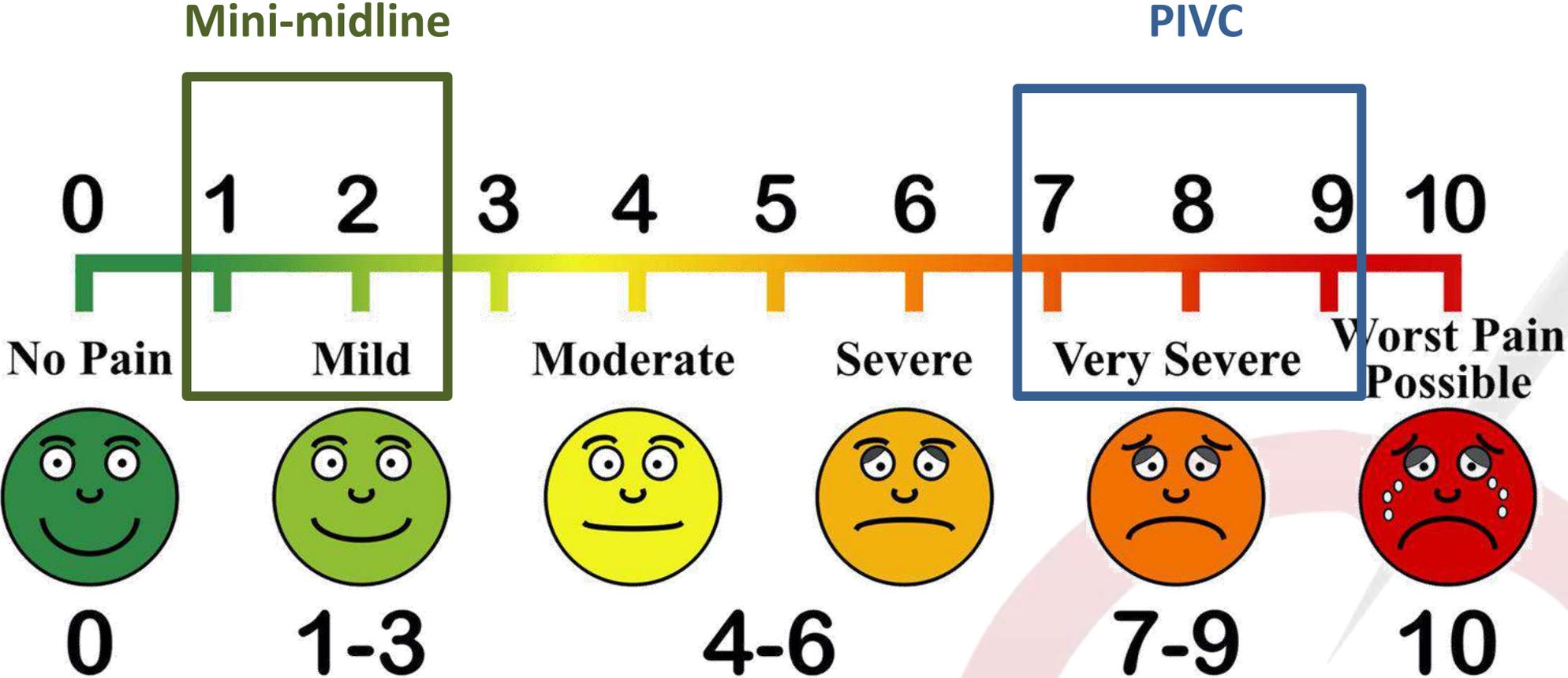
Total expenditure by device



Time consuming in cannulation

- **PIVC:** the mean time used for effective cannulation was 7.75 min (2.5 - 13 min, DIVA up to 30 min, Crowley M et al., 2012).
- **Mini-Midline:** the mean time used for cannulation was 10.32 min.

Pain scale (EVA)



Complications

• Phlebitis	2 (3.84%)
• Dislocation	0
• Infection	0
• Occlusion	4 (7.69%)
• Infiltration	0

Conclusions

- LPC cannulated by qualified and expert professionals allows to choose more accurately venous device, avoiding others inappropriate VAD.
- Higher insertion success, very useful in patients who need a safe VAD and DIVA, lower complications rate, multiple puncture attempts, longer indwell time, patient's satisfaction and cost-effectiveness.

PRIORITIES
Safety
Less trauma
Simple procedure
Patient's satisfaction

Ευχαριστώ πολύ

