A406 - Single-lumen 5fr and triple-lumen 6fr peripherally inserted central catheters (piccs) for cardiac output assessment by transpulmonary thermodilution.

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Introduction:
Trans-pulmonary thermodilution (TPTD) using single-lumen 4Fr and double-lumen 5Fr Peripherally Inserted Central Catheters (PICCs) significantly overestimate cardiac index and the other hemodynamic parameters if compared to Centrally Inserted Central Catheters (CICC)¹. However, the reliability of PICCs of larger size is still unknown.

Methods:
Prospective method-comparison study conducted in a medical-surgical ICU of a teaching hospital. We compared TPTD measurements via single-lumen 5Fr or triple-lumen 6Fr polyurethane power injectable PICCs vs. triple-lumen 7Fr CICC using a TPTD-calibrated Pulse Contour hemodynamic monitoring system (VolumeView/EV1000™ Edwards ©).

Results:
Out of 160 manual measurements in 15 patients, we did not found any difference in CI between single-lumen 5Fr PICC compared to CICC (3.2±1.04 vs. 3.2±1.06 L/min/m², p=0.824; percentage of error 14.7%); we also found no differences GEDVI, EVLWI, SVI and CVP.

CI was slightly higher when using triple-lumen 6Fr PICC than when using CICC (3.3±0.8 vs. 3.0±0.7 L/min/m², p=0.107, percentage of error 19.0%), although this difference did not reach the statistical significance. We found instead a difference in GEDVI (685±133 vs. 632±102 mL/m², p=0.05; percentage of error 19.5%).

Conclusion:
Single-lumen 5Fr PICCs are surely accurate for TPTD use, whereas triple-lumen 6Fr PICCs lead to a slight overestimation (ClinicalTrial.gov NCT03834675).

References: