This study describes a comparative analysis of eight commercial polyurethane, single-lumen peripherally inserted central venous catheters (PICCs) from different vendors" Poli et al (2015).

Abstract:

PURPOSE: This study describes a comparative analysis of eight commercial polyurethane, single-lumen peripherally inserted central venous catheters (PICCs) from different vendors. The aim was to investigate the mechanical response of the catheters providing objective and quantitative data to support a comparison among them.

ReTweet if useful... Comparison of polyurethane PICCs http://ctt.ec/URGWw+ @ivteam #ivteam

Click To Tweet

Such data could help nurses and physicians to select a central venous catheter (CVC) not only on the basis of the expected dwell duration or of the assessment of the vessels at the desired insertion site but also of the chemical and mechanical properties of the CVC and of the projected response of the body to these properties.

METHODS: An experimental procedure was defined and tests were performed to assess some main characteristics of the PICC lines, including macro and microgeometric features, chemical and physical properties, and mechanical response. Preliminary measurements were performed to accurately define all geometric characteristics, including length, inner and outer

diameters, and any inherent initial curvature of the catheter. Micro-geometric features were investigated using surface roughness analysis, optical microscopy, and scanning electron microscopy. Mechanical properties were studied by means of dynamic mechanical thermal analysis, simple uniaxial tensile tests, and kinking tests.

RESULTS: Results are discussed in order to compare the different PICC lines. In particular, they show that polyurethane catheters can have a different mechanical behavior, which might play a role in the onset of pathologic processes and result in an increased risk and incidence of catheter-related complications.

CONCLUSIONS: This study provides useful information that can help identifying and facilitate the choice of a PICC.

Reference:

Poli, P., Scocca, A., Di Puccio, F., Gallone, G., Angelini, L. and Calabrò, E.M. (2015) A comparative study on the mechanical behavior of polyurethane PICCs. The Journal of Vascular Access. September 7th. .

Thank you to our partners for supporting IVTEAM