



An empirical reflux measurement, relative to the needleless connector and the catheter in use, can be obtained using an 18G cannula” Elli et al (2016).

Abstract:

Purpose: To evaluate fluid reflux, when disconnecting syringe, for different needleless connectors.

Materials: Nine connectors were tested; 540 measurements were carried out.

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Results: The connectors tested showed very different performances, about reflux, on disconnection of the syringe used for flushing.

The calculated reflux volumes are: Max Zero® - BD: 6.90 (±2.47) mm<sup>3</sup>; MicroClave Clear® - ICU Medical: 6.14 (±1.46) mm<sup>3</sup>; Bionecteur® - Vygon: 1.24(±0.73) mm<sup>3</sup>; Neutron® - ICU Medical: 0.12 (±0.15) mm<sup>3</sup>; SmartSite® Carefusion: 33.51 (±11.50) mm<sup>3</sup>; Safe Plus® - Cremascoli: 23.54 (±3.56) mm<sup>3</sup>; NeutraClear® - Cair: 9.36 (±1.87) mm<sup>3</sup>; NeutroX® - Cair: 0.33 (±0.31) mm<sup>3</sup>; Dasa® BTC: 2.38 (±1.67) mm<sup>3</sup>.

Differences between investigated devices were statistically significant ( $p < 0.001$ ).

Discussion: It is difficult to establish the best quality-price ratio for needleless connectors. It is important to consider several variable factors: continuous or discontinuous infusion, catheter type, usage environment and caliber of catheter used. It would therefore be useful to have an indication of the intraluminal space potentially affected by blood reflux in relation to a specific device.

Conclusions: Needleless connector is one of the main factors involved in keeping catheter patency. It is important to perform the best choice among the connectors available.

An empirical reflux measurement, relative to the needleless connector and the catheter in use, can be obtained using an 18G cannula.

Reference:

Elli, S., Abbruzzese, C., Cannizzo, L. and Lucchini, A. (2016) In vitro evaluation of fluid reflux after flushing different types of needleless connectors. The Journal of Vascular Access. July 20th. .

DOI:10.5301/jva.5000583

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