



The primary objective of this study was to compare pressures at various flow rates for central venous access devices in an ex vivo simulation of photopheresis” Szymanski et al (2018).

Abstract:

BACKGROUND: Central venous access devices are commonly used in extracorporeal photopheresis, but their performance has not been systematically evaluated. The primary objective of this study was to compare pressures at various flow rates for central venous access devices in an ex vivo simulation of photopheresis.

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STUDY DESIGN AND METHODS: Diluted, heparinized red blood cells were circulated through central access devices in series with a photopheresis system, and pressures at several flow rates were recorded. The devices tested were the Trifusion catheter (Hickman), the Vortex single-lumen and dual-lumen ports (Angiodynamics), and the TidalPort device (Norfolk). Flow rates were also compared for silicone and polyurethane catheters and for different catheter internal diameters.

RESULTS: The Vortex dual-lumen port generated pressure alarms above flow rates of 60

mL/minute. Throughout flow rates from 5 to 100 mL/minute, the Trifusion catheter and the TidalPort device operated at lower pressures than the Vortex ports. Within typical clinical flow rates, neither catheter material nor internal diameter substantially affected pressure.

CONCLUSION: Central venous access devices show large differences in pressure within flow rates used routinely in clinical settings. These differences cannot be fully attributed to catheter material composition or catheter internal diameter.

Reference:

Szymanski, J., Shah, P., Dynis, M., Mansfield, D., Hamilton, C. and Despotis, G. (2018) An ex vivo comparison of vascular access devices used in extracorporeal photopheresis. *Transfusion*. 58(Suppl 1), p.609-613.

doi: 10.1111/trf.14482.

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