However, there are no studies comparing simultaneous use of all three lumens of a triple lumen (TL) central venous catheter (CVC) with other catheter types. Our objective was to compare the flow rates of normal saline (NS) through various resuscitation catheters against a TL CVC using all 3 ports” Traylor et al (2017).

Abstract:

BACKGROUND: Poiseuille’s law states flow rates are directly proportional to the radius to the 4th power and indirectly proportional to the length of a tube. Because of this property, large bore catheters are commonly used in the resuscitation of the critically ill patient. However, there are no studies comparing simultaneous use of all three lumens of a triple lumen (TL) central venous catheter (CVC) with other catheter types. Our objective was to compare the flow rates of normal saline (NS) through various resuscitation catheters against a TL CVC using all 3 ports.

METHODS: We performed a blinded prospective observational study of flow rates utilizing multiple resuscitation catheters. Each catheter type was attached to a 1l bag of NS using standard saline tubing and mean time to infuse 1l of normal saline was determined. Three trials each were completed with and without pressure bags.

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RESULTS: Simultaneous infusion of NS through all ports of a TL CVC demonstrated no statistically significant difference compared to the following catheters: 16ga peripheral venous catheter (PVC) and 6 Fr CVC with pressure bag. The 14 g PVC and 8.5Fr CVC had statistically significant faster flow rates than the TL CVC both with and without a pressure bag. The 6Fr CVC showed significantly faster flow rates than the TL CVC without a pressure bag.

CONCLUSIONS: Simultaneous use of all 3 ports of a TL CVC generates flow rates comparable to many other commonly used resuscitation catheters.

Reference:


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