This study examined the maximum flow rate and infusion pressure of various peripherally and centrally inserted intravenous catheters using a rapid infusion system (ThermaCor 1200 Rapid Infusion System, Smisson-Cartledge Biomedical)” Wrenn et al (2017).

Abstract:

The inability to rapidly administer warm intravenous fluids and blood products can potentially threaten a patient’s safety and well-being in many clinical settings. Large-bore intravenous catheters and rapid infusion systems are often used in situations where rapid blood loss and massive blood transfusion may be expected. This study examined the maximum flow rate and infusion pressure of various peripherally and centrally inserted intravenous catheters using a rapid infusion system (ThermaCor 1200 Rapid Infusion System, Smisson-Cartledge Biomedical). Nine different peripheral and central catheters or lumens were studied using 500 mL of 0.9% sodium chloride and 250 mL of hetastarch. Ten trials were performed. The maximum flow rates and infusion pressures were noted. Data were analyzed using the analysis of variance and the Tukey Studentized Range test. Statistically significant greater flow rates were noted with both 0.9% sodium chloride and hetastarch in most of the peripherally inserted catheters compared with the centrally inserted catheters. These results suggest that use of this infusion system with peripherally inserted catheters may be more effective in achieving higher maximum flow rates than with centrally inserted catheters.
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