Cannulation-related complications can also negatively impact on a patient’s dialysis experience and quality of life. This study aimed to identify patient, VA and nurse factors associated with unsuccessful VA cannulations” Coventry et al (2019).

Abstract:

BACKGROUND: Successful vascular access (VA) cannulation is integral to the delivery of adequate dialysis, highlighting the importance of ensuring the viability of arteriovenous access in hemodialysis (HD) patients. Missed VA cannulation can lead to infection, infiltration, hematoma or aneurysm formation resulting in the need for access revision, central venous catheter (CVC) placement, or permanent loss of VA. Cannulation-related complications can also negatively impact on a patient’s dialysis experience and quality of life. This study aimed to identify patient, VA and nurse factors associated with unsuccessful VA cannulations.

METHODS: A prospective cohort study was conducted in HD patients with a permanent VA from three HD units. Data on patient, VA and nurse characteristics, plus, cannulation technique were collected for each episode of cannulation. General Estimating Equation was used to fit a repeated measures logistic regression to determine the odds of cannulation success.

RESULTS: We collected data on 1946 episodes of cannulation (83.9% fistula) in 149 patients by 63 nurses. Cannulation included use of tourniquet (62.9%), ultrasound (4.1%) and was by
rope ladder (73.8%) or area (24.7%) technique. The miscannulation rate was 4.4% (n = 85) with a third of patients (n = 47) having at least one episode of miscannulation. Extravasation (n = 17, 0.9%) and use of an existing CVC (n = 6, 0.6%) were rare. Multivariable characteristics of successful cannulation included fistula compared with graft; older access; absence of stent; no ultrasound; no tourniquet; and lack of post graduate certificate in renal nursing.

CONCLUSION: This study demonstrated a low rate of miscannulation. Further research is required on ultrasound-guided cannulation. Identifying variables associated with successful cannulation may be used to develop a VA cannulation complexity instrument that could be utilised to match to the cannulation skill of a competency-assessed nurse, thereby minimising the risk of missed cannulation and trauma.

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