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Elements of dialysis nursing practice associated with successful cannulation: Result of a survey

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Introduction: Vascular Access (VA) cannulation is an essential skill for dialysis nurses: Failure to correctly repeat this operation day after day may result in serious complications for the patients.

Aim: The aim of this study was to investigate if the different aspects of Arteriovenous Fistula (AVF) and Graft (AVG) cannulation have an effect on the development of acute access complications which may, in the medium-long term, affect the survival of the vascular access.

Methods: In April 2009, a cross-sectional survey was conducted in 171 dialysis units located in Europe, the Middle East, and Africa to collect details on VA cannulation practices. Information on cannulation retrieved from the survey comprised fistula type and location, cannulation technique, needle size, application of arm compression at the time of cannulation, needle and bevel direction, needle rotation and needle fixation.

Results: In total, 10,807 cannulation procedures of an equivalent number of patients were observed and included in the current evaluation. Out of all observed cannulation procedures, 367 showed some kind of complication, the most frequent (33.8%) being the need for multiple cannulations. In summary, the following were associated with a significantly higher odds ratio for acute complication: prescription of 16-17 gauge needles, of back-eye needles, the use of rope-ladder cannulation technique, the insertion of the venous needle as first needle and the rotation of the arterial needle.

Conclusions: This study highlights critical steps in the process of cannulation potentially affecting the lifespan of the vascular access and stressing the need for additional research aimed to improve the practice.

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Impact of diuretic therapy on renal outcomes of Chronic Kidney Disease patients

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Diuretic therapy has been mainstay of treatment in Chronic Kidney Disease (CKD) patients, primarily for hypertension and fluid overload. Apart from their beneficial effects, diuretic use is associated with adverse renal outcomes. Current study aimed to determine outcomes of diuretic therapy. A prospective observational study was conducted by inviting pre-dialysis CKD patients. Fluid overload was assessed by Bioimpedance Analysis (BIA). A total 312 patients (mean age 64.5±6.43) were enrolled. Among 144 (46.1%) diuretic users, furosemide and hydrochlorothiazide (HCTZ) were prescribed in 69 (48%) and 39 (27%) patients respectively, while 36 (25%) prescribed with combination therapy (furosemide plus HCTZ). Changes in BP, fluid compartments, eGFR decline and progression to RRT were assessed over a follow-up period of 1 year. Maximum BP control was observed with combination therapy (-19.3 mmHg, p<0.001) followed by furosemide (-10.6 mmHg with 80 mg thrice daily (p<0.001)), -9.3 mmHg with 40-60 mg (p<0.001) & -5.9 mmHg with 20-40 mg (p=0.02) while HCTZ offered minimal SBP control (-3.7 mmHg with 12.5-25 mg (p=0.04)). Decline in extracellular water (ECW) ranged from -1.5 L (p=0.01) with thiazide diuretics to -3.8 L (p<0.001) with combination diuretics. Decline in eGFR was maximum (-3.4 ml/min/1.73 m2, p=0.01) with combination diuretics and least with thiazide diuretics (-1.6 ml/min/1.73 m2, p=0.04). Progression to RRT was observed in 36 patients. It is cautiously suggested to discourage the use of diuretic combination therapy and high doses of single diuretic therapy. Prescribing of diuretics should be done by keeping in view benefit versus harm for each patient.

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