

USE OF UROKINASE '4 STEPS' TO RE-ESTABLISH OR IMPROVE BLOOD FLOW RATES OF A PERMANENT TUNNELLED VASCULAR CATHETER (PTVC)

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PROBLEM: Dialysis patients with PTVC's need to achieve blood flow rates of >250 – 300 ml/min to optimise dialysis adequacy. Failure to achieve an optimal blood flow rate (BFR) a few weeks following insertion maybe due to mechanical problems, for example, catheter malposition or kinking which results in complete or intermittent occlusion of the catheter. However, occlusion or gradual and intermittent loss of blood flow maybe caused by the build up of fibrin clots or fibrin sheaths around the internal or external aspect of the catheter.

PURPOSE: Our previous guidelines for the administration of Urokinase in a vascular catheter with no blood flow included a 30 minute in-dwell or a 12 hour infusion requiring an overnight admission into hospital. We wanted to change to a more structured approach to improve our BFR and low URR in the Renal Registry. To design a protocol for the effective use of '4 Steps' of administering Urokinase to re-establish or improve BFR's in PTVC's.

DESIGN: The protocol was approved and includes details of the training and assessment programme for Registered Nurses and the procedures to follow for each of the '4 Steps' of administration as follows:

Step 1: 30 minute push-lock technique

Step 2: Inter-dialysis technique

Both these techniques are used to re-establish a blood flow in a PTVC

Step 3: Intra-dialysis technique used to improve a BFR during haemodialysis

Step 4: Used as a prophylactic lock after either Steps 1, 2 and 3.

Teaching sessions were facilitated and nursing staff were supported and guided when administering either one of the above steps.

FINDINGS: An audit was conducted which identified those patients with occluded PTVC's or poor BFR's and when the 4 Steps were administered to resolve either of these problems. Data from 67 interventions with Urokinase was collected.

RESULTS: There were no adverse effects noted and the number of patients with PTVC's requiring intervention with Urokinase showed a more timely process when using Step 1 and Step 2. There was a 28% increase in BFR's when using Step 3a/b, thereby improving URR's for those patients with PTVC.

CONCLUSION: Our approach is easy to follow and manage and ultimately has led to a more timely intervention for the patient causing less disruption to the patient and organisation of the haemodialysis unit, for example, no need for overnight infusions for patients which has bed space and financial savings for the Trust. The patient receives the amount of Urokinase that is appropriate for their needs i.e either Step 1 or 2 to re-establish a blood flow or Step 3a/b to improve the BFR. The nursing staff embrace the change and found the process of administration straightforward and easy to manage.