

Less is More - Quality Improvement Through Simplification

Nurse Led Care Model—Management of Damaged Vascular Catheters in the Haemodialysis Units

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Introduction

As specialty health care environments evolve, nurse led models are imperative and have significant impact on patient outcomes. Increasing clinical demands on a limited pool of staff led to a necessity to achieve a higher level of integrated care for our patients. A nurse led model in the repair of damaged tunnelled vascular catheters has been developed and implemented in our haemodialysis units.

Key Issues

- Increased number of damaged tunnelled vascular catheters secondary to longevity / frequency of use
- Increased number of patient transfers from both chronic and acute haemodialysis units to inpatient status in order to address above issue

Pre Intervention Concerns

- No options available to treat damaged catheters within department – required intervention from external department with unknown wait times and differing priorities
- Above issue required extra time spent in assessment, referral and treatment of individual patients, physical patient transfers and admission processes
- Patients were considered 'at risk' due to lengthy waiting times and urgency of ongoing haemodialysis treatment

Purpose

Aims / Objectives

- Implementation of local tunnelled vascular catheter repair procedure with associated pathway for referral
- Decrease overall requirement for tertiary (interventional) involvement in ongoing management of tunnelled vascular catheters
- Minimise clinical risk to individual patients and organisation as a whole
- Maximise access to procedural skill base both in and after hours

Challenges

- Establishing change to 'status quo' thinking / mentality regarding referral to radiology for rewire / replacement
- Gaining interest within stakeholder group
- Establishing basis of accreditation and training
- Development of sustainable knowledge / skill base for advanced practice haemodialysis nursing staff in a traditionally medical procedural domain

Method

Strategies

- Investigate interest level and 'potential' in senior HD staff who want to expand their specialist skill base towards advanced practice status
- Discuss and clarify ongoing expectation of advanced practice haemodialysis nursing staff regarding referrals from the renal department and other departments within the hospital
- Establish criteria for 'point of care' repair
- Extensive discussion re projected outcomes and risk level undertaken with all stakeholders within department

Development of Nurse Led Care Model

- Initiated by Senior Nurse Educator
- Accreditation requirements based on key performance indicators established by Director of Dialysis and Senior Nurse Educator
- Continuing accreditation based on annual review inclusive of formal sign off
- Health In Brief written and presented to Head of Department - Renal Medicine, Director of Dialysis Service and Director of Nursing and Midwifery Services with signature approval gained

Implementation

- Initial skill training done in simulated environment
- Minimum of 5 vascular catheter repairs performed in patient care environment under direct supervision of senior nurse educator
- Trained staff identified to all key stakeholders within the renal department for future referrals
- Skill base integrated into clinical pathway for 'Management of Dysfunctional Haemodialysis Vascular Access'

Conclusion

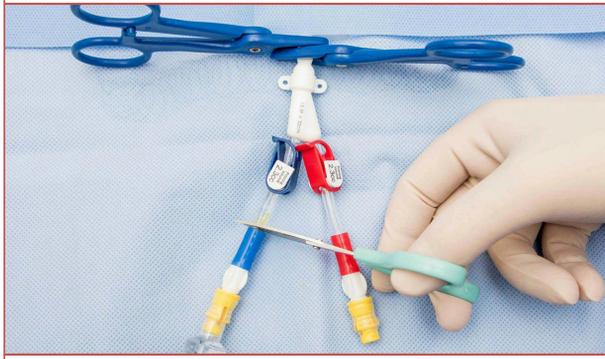
As outlined in the results section, significant gains have been made due to the implementation of a nurse led care model in the management of damaged vascular catheters. Vascular catheter repair is considered to be a safe, feasible procedure with an acceptable complication rate. In our experience there is a significantly decreased clinical risk profile in comparison to the tertiary intervention alternative. It is patient focused and time aware. Robust and highly favourable outcomes have been demonstrated in clinical practice. There has been a definitive swing in 'status quo' thinking with increasing numbers of direct referrals from both medical and senior nursing staff across our institution. To be successful this option requires commitment from renal advanced practice nursing staff, adequate infrastructure, development and maintenance of expertise, and good organisation within a clear pathway of prioritised care. The nursing role in quality improvement in this instance was fundamental to its overall success.



Hole Above Vascular Catheter Hub



Broken Vascular Catheter Clamp



Cutting Vascular Catheter Hub to Allow Repair



Hub Cut and New Clamp Placed



Replacement Hub Attached

Results

Impact on Patient Group

- Direct treatment at point of care with trained advanced practice nurse doing assessment and management
- Overall decrease in requirement for tertiary level intervention (interventional radiology)
- Reduced waiting time for intervention and commencement of haemodialysis
- Decreased requirement for inpatient admission
- Reduction in length of stay if admission required (trained staff unavailable at time of presentation)
- Increase in longevity of vascular access catheters (lifeline for ongoing treatment)
- Preservation of potential future access vessels
- Reduction in overall clinical risk associated with intervention

Impact on Staff Group

- Increase in ability of advanced practice haemodialysis nursing staff to appropriately assess, troubleshoot and treat in an immediate sense
- Change in overall department view of best practice re timely access to haemodialysis service
- Increase in morale / culture change secondary to recognition of improvement in patient pathway
- Introduction and sustainability of defined clinical pathway for vascular catheter dysfunction

Impact on Organisation

- Reduction in use of radiology service for replacement and rewire of dialysis related vascular access
- Decrease in vascular catheter related admissions
- Reduced patient movement episodes between multiple areas of the hospital for specialised treatment
- Decrease in vascular access presentations to the emergency department
- Decrease in costs and time associated with admissions / length of stay, interventional procedures, staffing and dialysis price per treatment consumables
- Decrease in clinical risk profile (secondary vs tertiary intervention)

Performance Measures

- Number of damaged tunnelled vascular catheters (from haemodialysis patient group) referred to by advanced practice haemodialysis nursing staff
- Number of damaged tunnelled vascular catheters (from haemodialysis patient group) not referred to advanced practice haemodialysis nursing staff
- Number of patients referred directly to interventional radiology for rewire / replacement when catheter meets repair criteria
- Number of tunnelled vascular catheters unable to be repaired and reason

Discussion

A nurse led care model offers a welcome alternative to the traditional multifaceted system of medical referral. This is especially true when it is localised to the specific department where the problem occurs. 'Point of care' treatment offers many benefits. These include skill maintenance and consistency of skill performance, an improved pathway for access dysfunction, and increased rapport with patients developing secondary to being treated as a priority. However, this is a single centre experience where the patients undergoing the procedure are incident patients. This limits the applicability of the outcomes as they are not directly comparable to other centres in relation to type of dysfunction and availability of resources. A secondary limitation of note is the availability of trained staff. Trained staff may not be available / accessible at the time of presentation therefore use of the dysfunction pathway would be limited by this.