Side and position of haemodialysis catheters (VasCath) can affect its survival

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Why this audit?

- Reduce cost of haemodialysis including catheters (VasCath): one kit costs 500 £ (1).
- Reduce incidence of therapy interruption, risks due to malfunctioned catheters.
- Achieve a target of 1:1 catheter to episode of AKI (up to 7 days).

Aims and Objectives

- To establish the site and tip position of VasCath that most likely survives and works effectively during the whole period of continuous dialysis.

Specific criteria/standards

- Adult CVC checklist and infection control procedures to be completed for 100% of VasCath inserted (trust's policy).
- Ultrasound should be used routinely for internal jugular central venous catheter insertion and of a recommended use for all other central venous access sites with limited evidence (2,3).
- Whether preference of the RT side IJV/Sub VasCath insertion over the Lt side IJV/Sub leads to a longer survival rate of the catheter or not? (no strong evidence).
- Temporary haemodialysis catheter tip should be positioned in the superior vena cava/ RT atrium (at the level of the carina in CXR).

Methodology

A retrospective systematic review of all ITU patients' records over the period of 6 months from 1st of November 2015 to the 1st of May 2016, and selecting patients who had been haemodialysed through a VasCath at any point.

- Total number of patients= 115
- Patients who received haemodialysis=25

Results

Sites of Insertion

Survival in hours

Survival in hours

- Survival of RT side chest catheters was significantly longer than those on LT chest side and femoral ($P < 0.01$).

How often do we need to swap the lines, reposition or rewire the dialysis catheters?

Frequency of tip position

Average Survival in Hours According to Tip Position

Discussion and recommendations for change

- There was a statistically significant longer survival rate for the right chest side and femoral haemodialysis catheters than left side and catheter tip position at the level of the carina (-/+ 1 cm over far deep or superficial catheter tips).
- Fewer number of interruptions of dialysis therapy were encountered in right side chest catheters in comparison to left side and femoral catheters.
- favour left side CVC insertion in any patient with AKI and/or potential need for dialysis to spare right side or using the same vein dual catheter technique to obtain a vascular access and VasCath in the same vein on the right side.

Action Plan

- Highlight the value of future plan of vascular access for every ITU admission.
- Re-audit the dialysis catheters over a longer period of time with larger sample size.
- Explore all options to create a multicentre RCT to prove or deny the superiority of right side catheters over the left side.

References

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