

The Impact of Nursing Practice in Reducing Bloodstream Infections in Tunnelled Catheters

Eileen Cassidy
eileen.cassidy@bbraun.com

BBraun Wellstone Clinic

Block 9, Galway Technology Park, Parkmore, Galway

Introduction

Not all haemodialysis access is created equal; comparing patients with arteriovenous fistula/graft, to those with a tunnelled central venous catheter (CVC) have a 15-fold increased risk of infection ³. CVC's pose a greater risk of device-related infections than any other types of medical device ⁵. The literature has shown higher morbidity and mortality rates among patients who develop catheter related bloodstream infections (CRBSI). As a result there is a rise in both hospital costs and microbial resistance ^{1,2}. Therefore it is essential that infection control and quality measures are paramount within a dialysis clinic. Excellent nursing practice is an essential proficiency to achieve reduced CRBSI. It is proposed that with strict guidelines and protocols that CRBSI can be reduced to 1.1 per 1,000 catheter days ³.

Methods

All patients that attended the Bbraun Wellstone dialysis clinic with a CVC are exposed to the same clinical practice and education. CRBSI is defined as having one or more positive blood culture result from patient access and or peripheral sample.

Care of the patient consisted of:

- Staff to patient ratio
- Staff education
- Experienced nursing staff
- Dressing policy (all dressings are done weekly on the same day Monday/Tuesday unless clinically indicated otherwise with clear dressing. All dressings are done in the same way with chlorhexidine 0.5% used in 70% alcohol, no impregnated dressings are used)
- Audits (hand hygiene and dressing policy compliance)
- Scrub the hub pre connection and disconnection at least 15-30 seconds
- Dialysis CVC packs with all dialysis requirements for the connection and disconnection procedure.
- Non-touch technique with chlorhexidine soaked gauze
- Two person connection (healthcare assistant passes dialysis lines enabling nurse to remain aseptic and non-touch)
- MRSA screening for patients every three months
- Patient education
- Trisodium Citrate or Heparin post dialysis lock (patients requirements)
- All Nurse managers work clinically
- Clinical practice changed in-line with new evidence based practice

None of the items below are used within the dialysis clinic

Antibiotic locks
face masks
Impregnated dressing
Topical antimicrobial applications

CVC dressing



Two person connection



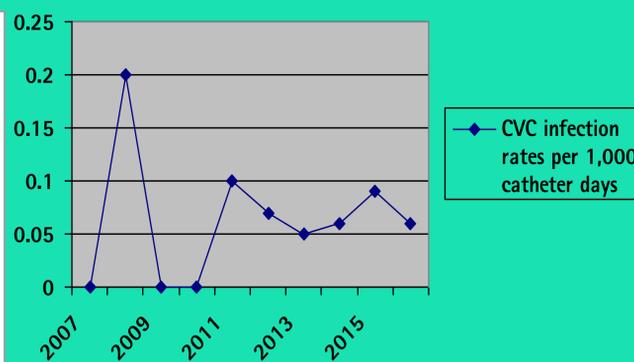
Conclusion

It is clearly evident that CRBSI in B.Braun Wellstone clinic is the lowest documented. While many of the methods correlate to evidence based clinical practice there are several different methods that need to be given thought.

- Two person connection, this allows the nurse to remain aseptic and non-touch at all times.
 - All clinical nurse managers work clinically enhancing quality standards and recognise additional clinical needs such as staff/patient education
 - Staff to patient ratio
- CRBSI have shown high mortality and morbidity rates among patients who develop CRBSI, subsequently increases hospital costs and microbial resistance. Prevention of CRBSI must be a priority with a dialysis unit.

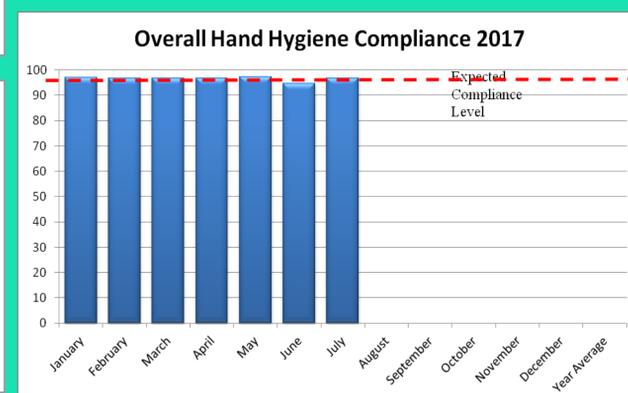
Results

There is a significant difference with Bbraun Wellstone clinic CRBSI over the ten year period 0-0.2 per 1,000 catheter days. In the data reviewed it is reported that the average CRBSI is 1.1-5.5 per 1,000 catheter days ^{3,4}.



Hand Hygiene Audit

Compliance for all staff in hand hygiene audit remains high throughout the year. Staff are unaware of the audit allowing normal clinical practice to continue.



Acknowledgements

All staff at BBraun Wellstone clinic for their hard work and dedication.
Aileen Rousell

References

1. Coulibaly G et al, (2015) Factors associated with infection of central venous catheter for hemodialysis in Ouagadougou. Open Journal of blood diseases (5) 59-65
2. Grothe C, (2010) Incidence of bloodstream among patient on hemodialysis by central venous catheter online www.eerp.usp.br/rlee.
3. Miller et al; hemodialysis tunneled catheter related infections. Canadian Journal of kidney health & disease 2016 vol3 p1-11.
4. Pooja et al (2011) Incidence of bacteremia associated with central venous catheters in patients on hemodialysis. International Journal of pharmacy & pharmaceutical science. (3) 135-138
5. Rumpam et al, (2014) Catheter-related bloodstream infections. International Journal of critical illness & injury science (4) 162-167