Dialysis Access Infections in Home Haemodialysis Patients: A Single Centre Experience

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Abstract

Creating and maintaining a functioning vascular access remains critical for successful Home Haemodialysis (HHD). Vascular access problems represent the main determinant of morbidity among haemodialysis patients and put a considerable degree of financial pressure on the healthcare sector. Successful haemodialysis depends on the provision of safe, efficient, and durable vascular access. Establishing and maintaining effective vascular access is a demanding process for both patients and renal services. Blood stream infections related to vascular access are common complication carrying significant morbidity.

We performed a retrospective cohort study to determine all dialysis access related infections in HHD patients at Waitemata District Health Board Renal Service for 5 years: between 1 October 2012 and 30th September 2017.

References


Background

Central venous catheters (CVC) are an important means of delivering hemodialysis to patients who require immediate initiation of dialysis but are without a mature functioning arteriovenous fistula or graft. The type of central venous catheters used for chronic haemodialysis include tunneled cuffed catheters and non-tunneled catheters. Hemodialysis (HD) patients are often predisposed to infections, significantly contributed to this susceptibility by the HD procedure as well as disturbances in both innate and adaptive immunity.

Infections are the major cause of morbidity and the second cause of death following cardiovascular events in HD patients. Bacterial infections are still a major cause of morbidity and mortality in chronic haemodialysis patients.

Study Subjects

Over the study period 110 patients dialysed at home.
44 were women (40%) and 66 were men (60%) with a mean age of 53.5 years (range 21 - 88 years).

There was 11529 Catheter days during the study period.

79 Patients who had AVF only (71.82%),
17 Patients who had catheter only (15.45%)
14 Patients who had both AVF and catheter (12.73%)

We noted that the rate of infection was greater in Home HD patients. This may be because of needling issues, lack of aseptic technique or “burnout”.

Aetiolog of ESRD in HHD patients

We saw these infections

We have observed a drop in CLAB rate after introduction of isopropyl alcohol caps.

Various measures were undertaken to control bacteremia in home dialysis patients. Initially we tried re-training and education. Then we tried antimicrobial line locks and revisiting the exit site dressing practices. Finally, we used of isopropyl alcohol caps.

Infections

Central Line Infections

We noted that rate of infection was greater in Home HD patients. This may be because of needling issues, lack of aseptic technique or “burnout”.

Discussion

Infection remains a major cause of morbidity in dialysis patients. We identified an increased rate of CLAB between HHD and HD patients dialysing in a facility. We noted a difference in the infection pattern (? Is this true).

A number of strategies were trialed to reduce the rate of infections. Our Centre found a significant reduction in CLAB with the use of isopropyl alcohol caps. A further multi-centre trial may be of interest to see if this result can be replicated.