

Advancements in Hemodialysis Technology: Decreasing Catheter-Related Bloodstream Infection (CRBSI) rates, improving patient outcomes, and reducing costs associated with catheter care

Testimonial from Dr. Jean Letarte, Medical Director at Western Skies Dialysis Center Inc., Casa Grande, AZ, 2009

INTRODUCTION

Western Skies is a 16-chair, privately owned dialysis center in Casa Grande, Arizona. It began accepting patients in December of 1992, operating six days each week with three shifts per day. They see 85 patients weekly, 40 percent of whom receive hemodialysis treatment through a Central Venous Catheter (CVC).

BACKGROUND

At Western Skies, one of the major concerns with hemodialysis catheters is catheter related bloodstream infections (CRBSIs). In fact, CRBSIs occur at a rate of approximately 2.5 to 5.5 cases/1000 patient-days or .9 to 2.0 cases/patient year.¹ In the incident of a catheter related bloodstream infection (CRBSI), the first treatment procedure is to administer intravenous antibiotics. If the infection should recur, the patient is then hospitalized to replace the catheter. On average, Western Skies had experienced 24 CRBSIs per 11,000 dialysis treatments during a 12 month period.

In addition to the possibility of infection rate and hospitalization, administration costs were high with the use of heparin at the end of every dialysis treatment. Western Skies used 26,000 units of heparin, at a cost of \$5.00 per patient/per treatment for 11,000 treatments, or an overall cost of \$55,000 just to flush out catheters at the end of each treatment.

IMPLEMENTATION

In an effort to decrease costs, hospitalized patients, and the risk of CRBSIs, Western Skies converted all catheter patients from the use of end caps to the closed-system Tego® needlefree hemodialysis connector. The staff was educated and in serviced on the proper use of Tego and found the transition to a swab-able, needle-free connector to be smooth and successful.

RESULTS

Since the implementation of the Tego, the staff quickly saw the advantages of having a closed system. This closed system required less catheter hub manipulation, which led to a decrease in CRBSIs, and ultimately a decrease in hospitalization. Another benefit of the Tego is since it is a neutral displacement connector, there is minimal reflux of blood upon disconnection of the blood tubing or syringe, thus eliminating the need for a heparin lock. This eliminated the use for post treatment heparin and saved time for both patients and clinicians, not to mention a decrease in cost for the facility.

Overall, Western Skies lowered their infection rate to only 5 CRBSIs per 11,000 treatments for the 12 months after implementing Tego and has since eliminated 90 percent of heparin usage. With this reduction in heparin, there has been an established cost savings of \$49,500 for the 12 months since using Tego. This transition alone has led to substantial savings for the facility.

CONCLUSIONS

Since implementing the Tego Connector at Western Skies, infection rates have decreased by 75 percent.

The prevention of CRBSIs is the most significant objective in the use of CVC's for hemodialysis patients. Western Skies has had 100 percent satisfaction with the Tego needlfree hemodialysis connector and its ability to decrease infection rates due to its closed system. The product has been easy to use, cost effective, and unproblematic for the clinicians, and the results have been outstanding. That, in addition to the elimination of heparin and the added safety that the closed system provides, has led to considerable clinical savings.

REFERENCES

1. Allon M. Dialysis catheter-related bacteremia: treatment and prophylaxis. *Am J Kidney Dis.*2004;44:779-791.