

WESTERN SKIES DIALYSIS CENTER, INC.

CASA GRANDE, AZ

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

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. 85 patients are seen on a weekly basis, 40% of whom receive hemodialysis treatment through a Central Venous Catheter.



Western Skies Dialysis Center
Dr. Jean Letarte, Medical Director

BACKGROUND

One of the main challenges associated with the Central Venous Catheter, specifically in the hemodialysis treatment, is the possibility of catheter related bloodstream infections (CRBSIs). In fact, a high percentage of patients with long-term Central Venous Catheters for chronic hemodialysis will develop a CRBSI. This can result in additional complications for the patient, as well as loss of revenue and scheduling difficulties for the clinic.

One of the main challenges associated with the Central Venous Catheter, specifically in the hemodialysis treatment, is the possibility of catheter related bloodstream infections (CRBSIs). In fact, CRBSI's occur at a rate of approximately 2.5 to 5.5 cases/1000 patient-days or .9 to 2.0 cases/patient year¹. According to the U.S. Renal Data System, sepsis is the second leading cause of death in dialysis patients².

At Western Skies, one of our major concerns with hemodialysis catheters is infection. In the incident of a CRBSI, our first treatment procedure is to administer intravenous antibiotics. However, if the infection recurs with the same organism, hospitalization is required to replace the catheter. When using a closed system, such as the TEGO, there is significantly less manipulation of the catheter hub, and consequently less risk of infection and hospitalization. Since implementing the TEGO Connector our infection rate at Western Skies has decreased by 75%. We had 24 CRBSI's per 11,000 dialysis treatments during a 12 month period prior to TEGO, and five CRBSI's per 11,000 treatments for the 12 months after implementing TEGO, thus supporting the benefits of this closed system technology.

Prior to TEGO, in addition to revenue loss, consequent to patient hospitalization due to CRBSI's, our facility incurred cost with the administration of Heparin used at the end of the dialysis treatment. Our facility used 26,000 units of Heparin, at a cost of \$5.00 per patient/per treatment for 11,000 treatments, and has since eliminated 90% of our heparin since switching to TEGO. With this reduction in Heparin usage, we have discovered a cost

savings of \$49,500 for the 12 months since using TEGO. The TEGO is a Neutral Displacement Connector, meaning that there is minimal reflux of blood upon disconnection of the blood tubing or syringe, thus eliminating the need for a heparin lock. This transition alone has led to substantial savings for our facility.

IMPLEMENTATION

In March of 2009, Western Skies converted all catheter patients from the use of end caps to the closed-system TEGO Connector. The ICU Medical product specialists fully educated our staff on the proper use of TEGO. We found the transition to a swab able, needle-free connector, to be smooth and successful.

RESULTS

Since our conversion to TEGO, we have seen a significant reduction in CRBSIs, resulting in improved patient outcomes. That, in addition to the elimination of Heparin and added safety that the closed system provides, has led to considerable clinical savings. Our staff quickly saw the advantages of having a closed system, which decreases the risk of CRBSIs, eliminates the post treatment Heparin and saves time for both patients and clinicians.

CONCLUSIONS

The prevention of Catheter Related Bloodstream Infections is the most significant objective in our use of Central Venous Catheters for hemodialysis patients. We have had 100% satisfaction with the TEGO 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 our clinicians, and the results have been outstanding. I would highly recommend TEGO to my peers.

REFERENCES

1. Allon M. Dialysis catheter-related bacteremia: treatment and prophylaxis. *Am J Kidney Dis.* 2004; 44: 779-791.
2. US Renal Data System. USRDS 2008 Annual Data Report: Atlas of Chronic Kidney Disease and End-Stage Renal Disease in the United States. Bethesda, MD: National Institutes of Health, National Institute of Diabetes.