

Prevention of Central line-associated bloodstream infections in hemodialysis unit

Malka Avital RN BA, Elena Ben Shahr RN MA, Vered Shani RN MA, Yaffa Peleg RN BA
Dganit Dinur Dr, Galia Rahav MD PHD, Ilana Tal RN MA
Institute of Nephrology and Hypertension. Chaim Sheba Medical Center
Affiliated to the Tel-Aviv University, Sackler School of Medicine, Tel-hashomer 52621, ISRAEL

Introduction

Central line-associated bloodstream infections (CLABSIs), exit-site infections, and tunnel infections are common complications related to hemodialysis central venous catheter use and associated with increased morbidity, hospitalization, and death. CLABSIs are the most costly healthcare-associated infections. Registry studies indicated that cardiovascular disease is the leading cause of mortality in dialysis patients. Infection is the leading cause of mortality in our department (52%). 30% of our patients are with central venous catheter. According to this data we started a project for CLABSIs prevention in collaboration with the infectious diseases service in our hospital.

Purpose

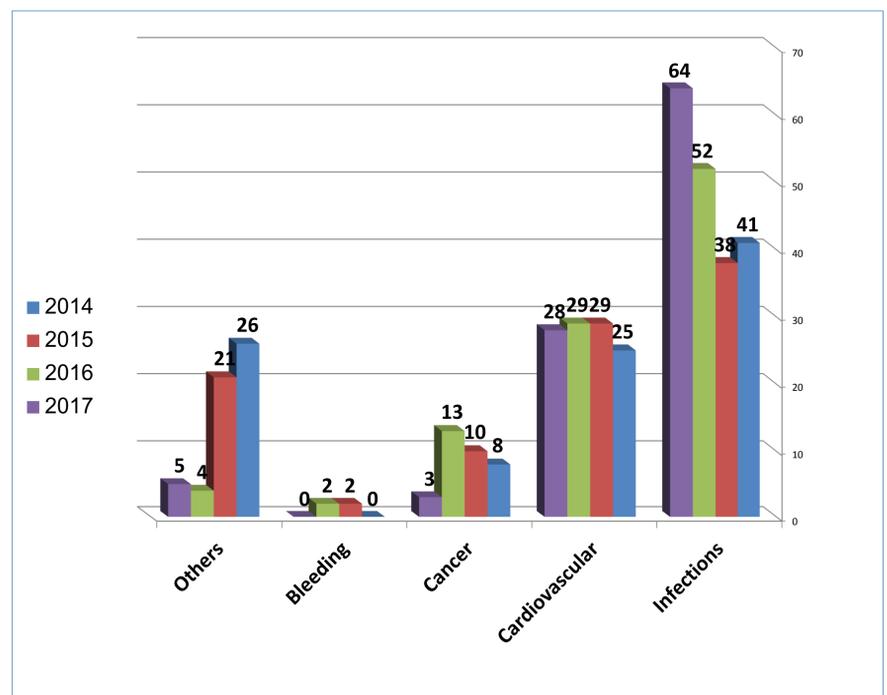
The purpose of this study is to monitor, investigate and prevent central line-associated bloodstream infections in hemodialysis outpatients in our unit. The was chosen as a quality project in our unit with using of PDCA model – PLAN-DO-CHECK-ACT.



Methods

Bloodstream infections in patients on hemodialysis were investigated using a case-control data conducted between January 2015 and December 2017. CLABSIs data collected and incidence rates of catheter infections are presented as number of infections per 100 catheter-months. In addition to Guidelines for Prevention of Intravascular Catheter-Related Infections of the Centers for Disease Control and Prevention (CDC), observations of connection to dialysis were conducted by the infectious diseases service and by the senior hemodialysis nursing staff. According to observation results, nurses staff received education and training, simulation of connection to hemodialysis and hand hygiene. Additional intervention included: shortened waiting times for the vascular access operations, replacement of heparin lock to antimicrobial Taurolidine lock and use of Tegaderm CHG dressing.

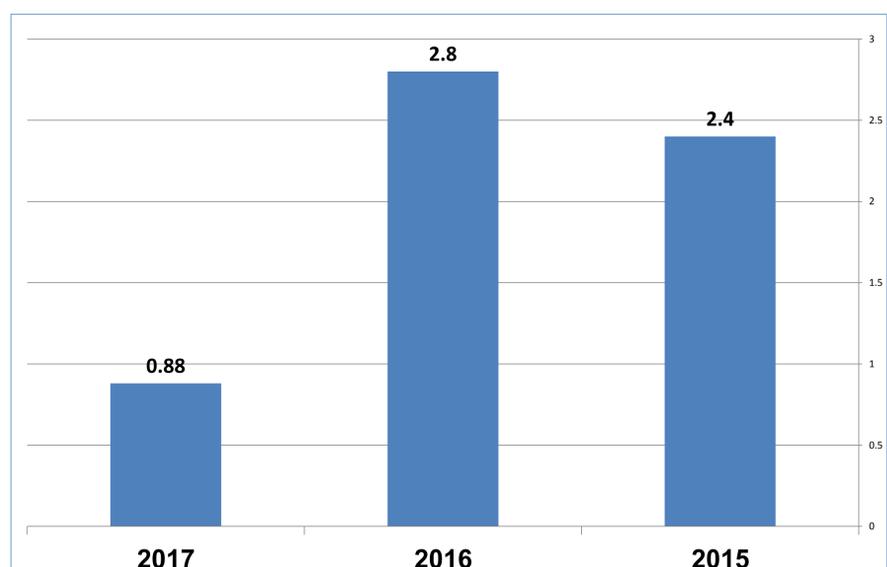
Cause of mortality in dialysis patients %



Results

At the beginning of the study the incidence rate of CLABSIs was 2.4 number of infections per 100 catheter-months. The final destination was determined as 0.8 number of infections per 100 catheter-months (as described in the literature). At the end of the project Incidence rates of catheter infections dropped to 0.88 number of infections per 100 catheter-months.

Incidence rate of CLABSIs per 100 catheter-months



Conclusion

Prevention rate of CLABSIs required a hard work, using various training techniques, new technologies, assimilation and preservation of all prevention methods.