

P0025

Paper Poster Session I

Severe sepsis, bloodstream infection and catheter-related bacteraemia

Epidemiology and prognosis of bacteraemia among dialysis patients at the Emek Medical Center: a 10-year surveillance study

O. Nitzan<sup>1,2</sup>, N. Habbashe<sup>1</sup>, Y. Kuperman<sup>1</sup>, H. Edelstein<sup>1</sup>, R. Raz<sup>1</sup>, B. Chazan<sup>1,2</sup>

<sup>1</sup>Emek Medical Center, Afula, Israel

<sup>2</sup>Rappaport Faculty of Medicine- Technion, Haifa, Israel

**Background**

Infections are a common and significant complication among **D**ialysis **P**atients (DP) and bacteremia may result in endocarditis and high mortality rates. Risk factors for bacteremia and death in DP include dialysis through a Central Line Catheter (CLC) and old age. These infections are increasingly caused by resistant bacteria, including Methicillin Resistant *Staphylococcus aureus* (MRSA) and Extended Spectrum  $\beta$ -lactamase producing Enterobacteriaceae (ESBL).

Data concerning bacteremia in DP in Israel is very limited.

**Objectives**

The aim was to study bacteremia events in DP hospitalized in Emek Medical Center, focusing on patient characteristics, including port of dialysis, pathogen sensitivity profile and to assess mortality related factors.

**Methods**

Data concerning each episode of bacteremia is prospectively being collected at Emek Medical Center since 2003. Data of DP with bacteremia who were hospitalized during 2003-2011 was analyzed. Information was collected from hospital medical charts regarding: demographic and clinical characteristics, type and port of dialysis, source of bacteremia, isolated pathogens, susceptibility profile, and mortality data.

We also reviewed trends of change in patients' and bacteremia characteristics during these years and compared data of patients undergoing dialysis through either a CLC or an arteriovenous (AV) shunt. *Study was approved by local ethics committee.*

**Results**

During 2003-2011, there were 102 bacteremia episodes in 95 DP. Average age of patients was 65 years and 54% were men. Most patients had underlying diseases, most commonly diabetes (59%). Ten percent of the bacteremia episodes were in patients undergoing peritoneal dialysis, and 90% in those undergoing hemodialysis (68% thorough AV-shunt and 32% CLC). A significant trend of increased number of patients with bacteremia in patients with CLC was noted. Catheter-related bacteremia was the source in 60% of bacteremia events. The most common pathogen in blood cultures was *Staphylococcus aureus* -28% (17% of them were MRSA), followed by *E.coli* (15%). No difference was found in demographic characteristics, underlying diseases, source of bacteremia and pathogens between CLC and AV-shunt DP. In-hospital mortality rate in DP with bacteremia was 22.5%, with a trend of increased mortality in older age groups ( $p=0.067$ ), and significantly higher among those who perform dialysis through a CLC (Relative Risk [RR] =2.38 as compared with AV shunt.  $p=0.012$ ). Mortality rate was higher in bacteremic DP with MRSA than those with Methicillin Sensitive *Staphylococcus aureus* (MSSA) (RR=3.2; $p=0.03$ ).

**Conclusions**

Bacteremia in DP is associated with high mortality rates, especially in hemodialysis patients undergoing dialysis through a CLC and in cases of MRSA bacteremia. This study demonstrates the importance of infection control among DP, specifically the need to increase the number of patients with AV-shunt access and decrease MRSA carriage among these patients. MRSA carriage status should be taken into consideration when deciding upon empiric antimicrobial therapy.