Abstract

Introduction

Ventilator associated pneumonia (VAP), defined as a parenchymal lung infection occurring 48 hours or more after onset of mechanical ventilation, and has been recognised for at least the last two decades as one of the common infections in the intensive care unit (ICU). It has an estimated incidence of 10 to 41.5 per 1000 ventilator days in developing countries and carries a high mortality estimated at 24 to 50%. VAP is an entity that is poorly researched in South Africa, specifically in the adult population, with little known about local prevalence and outcomes.

Aim

To describe Ventilator associated Pneumonia (VAP) in a tertiary public hospital in Johannesburg, and assess the microbiological pathogens associated with VAP (both early and late) and outline the outcome of these patients.

Methods

A retrospective record review of patients admitted to Helen Joseph Hospital (HJH) ICU between the period of March 2013 and December 2015. All patients with the diagnosis of VAP were identified from the ICU data base and their records extracted from the hospital records and reviewed. Data was then consolidated from patient records as well as from NHLS digital record system.

Results

The percentage of patients admitted to ICU who developed VAP was 2.9% (95% CI 1.8- 4.2%) 24 out of 842 ventilated patients, with incidence rate of 16.4 per 1000 ventilator days during the period 2013-2015. Regarding outcome of VAP in this cohort, 29.2% died while 70.8% were discharged from ICU. Post ICU outcomes of these patients are beyond the scope of this research. Late-onset VAP (after 5 or more days of ventilation), with incidence of 45.8% was associated with much higher mortality of 54.6%, compared to early-onset VAP which had an incidence of 54.2%, and a mortality of 7.7%. Commonly isolated organisms included Staphylococcus aureus, Klebsiella pneumoniae, Acinetobacter baumanii and Proteus mirabillis. The trend toward increased risk of multi-drug resistant organisms remained with late onset VAP - adjusted RR [aRR] 2.26 (95% CI 0.92- 5.57), p-value = 0.077, and airway access through tracheostomy (relative risk [RR] 1.68 (95% CI 0.78- 3.57).

Conclusion

This study shows a low moderate prevalence of VAP of 16.4 events per 1000 ventilator days, with the lowest being 10 events per 1000 ventilator days. A tracheostomy and late onset VAP are associated with infection by drug resistant organisms. The study reveals a mortality of 29.2% in this setting, with a seven-fold increase in mortality with late onset VAP.