Neonatal Blood Stream Infections in a Pediatric Hospital in Vietnam: A cohort study

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INTRODUCTION

Septicemia is a major cause of neonatal (<29 days of age) morbidity and mortality in developing countries. The pattern of septicemia and Blood Stream Infections (BSI) varies depending on setting and patient population. Vietnam is a populous country in economic transition with high health care coverage. Few studies are published on neonatal BSIs are available.

The present study describes all confirmed BSIs among neonates in a tertiary paediatric hospital in Vietnam.

Hypothesis

We hypothesized that Vietnam would resemble other resource poor settings with a high incidence of BSI, mainly Gram-negative bacteria, and emerging empiric antibiotic resistance among our study population.

AIM

The aim of this study was to describe BSIs - incidence, isolate distribution, antibiotics susceptibility, and sepsis related mortality in a tertiary paediatric hospital in Vietnam.

MATERIALS AND METHODS

Study population

All neonates admitted to the study hospital in a 12 month period in 2009-2010 were included prospectively.

The indication for blood culture sampling in the hospital is severe clinical symptoms of septicemia.

Data collection

Blood culture results were obtained from the registries of the department of microbiology.

From the central hospital registry basic demographic and clinical data was collected, including outcome at 28 days of age, for all neonates.

RESULTS

5763 neonates were admitted in the study period, 2202 blood cultures were performed, of which 399 (18%) were positive (BSI).

Table 1 shows the distribution of isolates and table 2 shows their antibiotics susceptibility. Among neonates with BSIs, 62 septicemia related deaths occurred (16%). Table 3 shows isolate group associated mortality.

Analysis

Neonatal deaths among patients with BSIs were audited to classify sepsis related deaths according to ICD 10 classification of death causes.

Chi square trend test was performed to examine associations between isolate group and septicemia related mortality.

CONCLUSION

BSIs were mostly late onset and the majority of isolates was known pathogenic, Of these, Gram-negative bacteria constituted the vast majority and showed widespread resistance against empiric antibiotics. Septicemia related mortality was highest among Gram-negative bacteria.

Systematic surveillance of neonatal BSIs is recommended. Meropenem could be considered as prompt treatment of suspected late BSI with severe clinical signs of septicemia.

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