

Bacteriological profile with their antibiograms in neonatal septicaemia in a Teaching Hospital in Srilanka

Fernando R, Samarawickrama B.

Microbiology Department District General Hospital Chilaw

Introduction

Neonatal septicemia continues to be a major problem in Neonatal ICU. The gold standard for diagnosis of septicemia is the isolation of the microorganism from the blood culture which takes 48 hrs to 7 days. Therefore empirical treatment is crucial & it should be based on the local sensitivity data.

Objectives

To determine the Bacteriological profile with their antibiogram and to provide sensitivity data to make local treatment protocols

Materials and Methods

Total blood culture samples received in Brain Heart Infusion broth from clinically suspected cases of neonates from neonatal ICU from 1st January, to 31st December 2010 included for the study. Standard isolation procedures were done using blood, chocolate and MacConkey agar. All the organisms were identified by standard methods. However most Enterobacteriaceae were further identified using API 20E. Stokes disc diffusion method was used for susceptibility testing and ESBL detection was done using clavulanic acid .

Materials and Methods

Total blood culture samples received in Brain Heart Infusion broth from clinically suspected cases of neonates from neonatal ICU from 1st January, to 31st December 2010 included for the study. Standard isolation procedures were done using blood, chocolate and MacConkey agar. All the organisms were identified by standard methods.

However most Enterobacteriaceae were further identified using API 20E. Stokes disc diffusion method was used for susceptibility testing and ESBL detection was done using clavulanic acid .

Results:

During the study period 838 blood cultures were requested and 121 non repetitive specimens were positive (14.4%). Gram negative bacilli (59.5%) were more frequently isolated than Gram positive cocci (GPC) (40.5%). API 20E identification method was able to identify *Klebsiella spp* (30.4%), *Enterobacter spp* (20.2%), *Escherichia coli* (13%) as the common pathogens. 15.9% were unclassified with API and 20.2% of Enterobacteriaceae were unidentified.

Coagulase negative staphylococcus (CNS) (63%), and *Staphylococcus aureus*(18%) were the major GPC. Other pathogens were Grp D streptococcus (4), Group B streptococci

(3), Methicillin resistant *Staphylococcus aureus* (2), *pseudomonas spp* (2) and *Acinetobacter spp*(1).

Majority of Enterobacteriaceae were ESBL producers and sensitive to ciprofloxacin meropenam and amikacin. Coagulase negative staphylococcus resistance to penicillin and cloxacillin was 100% and 83% respectively. Penicillin resistance in staphylococcus aureus was 78%. However, only 18% of *Staphylococcus aureus* were found to be MRSA. All Gram positive organisms were sensitive to vancomycin.

Enterobacteriaceae antibiotic susceptibility

Amp	Cefu	Co amox	Cefotax	Genta	Cipro	Merop	Amikac
8.3	13.3	20.6	38.4	74.1	95.3	93.3	100

Conclusion

ESBL producing Enterobacteriaceae were the main pathogens in neonatal sepsis in our NICU. Empirical antibiotic choice of neonatal septicaemia in most NICUs is penicillin and cefotaxime. But High ESBL prevalence among Enterobacteriaceae makes cefotaxime resistant. Therefore Amikacin can be recommended as a replacement for cefotaxime for empirical treatment of sepsis to prevent mortality. This situation is serious therefore we should focus on preventive measures such as strict asepsis during labour and correct hand hygiene to prevent transmission of resistant pathogens.