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Case report Microbiology

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A VANCOMYCIN RESISTANT ENTEROCOCCALNEONATAL SEPTICAEMIA.

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ABSTRACT

The increasing incidence of Vancomycin resistant Enterococcci (VRE) infection is of concern because of limited treatment options and increased mortality. Here we report a rare case of Vancomycin resistant Enterococccal neonatal sepsis. A Very low birth weight male neonate with respiratory distress and suspected hyaline membrane disease was admitted to NICU had pulmonary haemorrhagia and suspected sepsis. On day 3, baby succumbed to death with naso-gastric and endotracheal bleeding. Blood culture showed growth signal within 24 hours. The culture was identified as Enterococcus species. It was confirmed as *Enterococcus feacium* by Automated Viteksystem. It showed resistance to all the antibiotics used; Penicillin, Oxacillin, Erythromycin Cefotaxime, Cefuroxime, Amikacin, Gentamycin, Co-trimoxazole, Amoxicillin and Vancomycin. Vancomycin resistance was confirmed by Minimum inhibitory concentration test. In Conclusion, once a culture positive for Vancomycin resistant Enterococci is isolated, the source of reservoir colonisation needs to be detected.

KEY WORDS:Vancomycin resistance, neonatal sepsis, *Enterococcus feacium*

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INTRODUCTION

Enteroccci are common nosocomial pathogens causing septicaemia. The increasing incidence of Vancomycin resistant enterococci (VRE) is of particular concern because of limited treatment options and increased mortality. Among various species of Enterococcus, *E.feacalis* and *E. fecium* are the most common human pathogens. Vancomycin-resistant Enterococcus sepsis is emerging as a significant problem in the intensive care setting. Neonatal bacterial sepsis is one of the major causes of morbidity and mortality inneonates.[1] The treatment at any age is challenging, but there is a dearth of information on this infection and its treatment in the very premature infant[2],which makes us report this case.

CASE

We present a case of male neonate, born by normal vaginal delivery, at 28 weeks gestation . His birth weight was 1.6kg.His Mother was undergoing treatment for gestational diabetes. Through-out her pregnancy and during delivery she did not receive any antibiotics. There was no premature rupture of membranes. After birth, the baby developed respiratory distress and was shifted to NICU . He was suspected to have hyaline membrane disease and put on ventilator. The baby was started on antibiotics Cefotaxime and Amikacin. From day one he was also put on Vitamin.K.Blood culture was done .Blood Culture sent on Day one was negative for any organism. But blood culture done of second day was positive for Enterococci. Direct smear showed Gram positive cocci in pairs, Bile esculin was positive, Mannitol motility Test showed non-motile and positive for mannitol fermentation. It was confirmed as *Enterococcus feacium* by Automated Vitek system, (Bio murex).The Antibiotic susceptibility testing by disc diffusion method, which showed resistance to the following antibiotics, Penicillin, Oxacillin, Erythromycin Cefotaxime, Cefuroxime, Amikacin Co-trimoxazole, Amoxicillin and Vancomycin. Vancomycin resistance was confirmed by minimum inhibitory concentration method and was found to be 64µg/ml.T he bacteria was sensitive to Linezolid. .

On day 3, baby started desaturating with naso- gastric bleeding and endotracheal bleeding.His haemoglobin dropped to 3.5gms from 16.7 gms, Total count raised to19,500 from 15,300 and lymphocyte increased to 68 from 44% from the parameters of Day 1. In spite of intensive neonatal care the baby succumbed to death on 3rd day. Enterococci are gram-positive coccicommonly occurring as part of the normal flora of thegut of healthy individuals, but can cause nosocomial infection in immunocompromised individuals and neonates. Several factors contribute to this increased risk among hospitalized patients, such as the disruption of the normal gastrointestinal flora by administration of broad-spectrum antibiotics, colonization with hospital-associated strains, poor infection control practices, presence of indwelling devices including endotracheal tubes , urinary catheters, and an immunosuppressed state. The first line of defence against infection is intact epidermis and mucous membrane barrier which is compromised in Very low birth weight babies.[3] In this case , probably the pathogen might have been a carrier in the mother's vagina. Her being a diabetic also confirms her immunocompromised state. Unfortunately in this study maternal blood culture, vaginal swab culture or screening of stool for Enterococci could not be done.

Enterococci account for as many as 10% cases of neonatal bacteraemia and septicemia. Enterococci may cause early onset (within 7 days of birth) andor late onset(> 7 days) neonatal sepsis. Most cases of Enterococccalbacteraemia in neonates are nosocomial. The drug of choice for VRE is Linezolid. [4]Hapnes et al reported a case of Vancomycin resistant *Enterococcus faecium* in a 10 day old infant who was successfully treated with Linezolid. The cause for persistent septicaemia was identified as intra aortic thrombus which was treated with linezolid and chloramphenicol. Although chloramphenicol is well known to cause grey baby syndrome it was cautiously added because of its wonderful ability to penetrate body tissues. In a few

cases where the infection fails to respond to Vancomycin, Quinupristin and Dalfopristin is added [2]. In this case the bacteria were resistant to Quinupristin and dalfopristin which made them choose chloramphenicol. Enterococci are dreaded for their ability to transfer its plasmids to other gram positive cocci. The implications of a possible spread of Penicillin and Vancomycin resistance to other gram positive species is of great concern to intensivists.[4,5].

CONCLUSION

This case study highlights VRE emerging as a cause of early onset neonatal sepsis. Prevention of infection needs active surveillance culture and aggressive implementation of infection control practice.It is essential that continuous reporting of these cases occurs so that clinicians caring for critically ill extremely premature infants are kept abreast of the safest treatment options available.

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