Bacterial blood culture isolates and their antimicrobial susceptibility obtained from 42 critically ill neonatal foals presented at Ghent University between 2011 and 2017

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Introduction

Knowledge about bacterial pathogens and their susceptibility patterns is important because early administration of appropriate antimicrobials is essential for survival in equine septicaemic neonates.[1,2] Aim of this study was to describe bacterial blood culture isolates and their antimicrobial susceptibility in foals younger than 14 days of age presented at the Department of Large Animal Internal Medicine, Ghent University.

Material and Methods

Retrospective study of bacterial blood culture isolate results, obtained after aerobic incubation of Becton Dickinson BACTEC™ Peds Plus™/F Culture Vials® in a BD Bactec FX40 system from 42 critically ill foals less than 14 days of age admitted to the intensive care unit between February 2011 and August 2017. Bacteria were identified using standard biochemical methods or MALDI-TOF mass spectrometry. Antimicrobial susceptibility was assessed by the Kirby Bauer disc diffusion method.

Results

Median age at admission was 1 day (ranging between 0-13 days). Forty-two positive bacterial blood cultures resulted in the identification of 55 bacterial isolates. A single organism was isolated in 72% of the blood cultures, whereas two (26%) or three organisms (2%) were isolated in the other cultures. Most prevalent Gram-negative isolates were *Escherichia coli* (18%) and *Actinobacillus equuli* (15%), while *Streptococcus* spp (13%) and *Staphylococcus* spp (11%) were most prevalent in the Gram-positive group. Overall antimicrobial susceptibility was highest for cefquinome (87%), doxycycline (82%), enrofloxacin (78%) and amoxicillin/clavulanic acid (73%). When combined antimicrobial susceptibility was considered; amoxicillin/clavulanic acid-amikacin (96%), amoxicillin/clavulanic acid-gentamicin (96%), cefquinome-amikacin (95%), cefquinome-gentamicin (95%), ampicillin-gentamicin (91%) and ampicillin-amikacin (91%) had the highest susceptibilities, while the combination of amikacin-penicillin only resulted in a 86% susceptibility.

Conclusions

Bacterial blood culture isolates of these neonatal septicaemic foals had a 96% susceptibility to the combination of amoxicillin/clavulanic acid with amikacin or gentamicin, compared to the frequently used single antimicrobial cefquinome (87%) or the combination amikacin-penicillin (86%).

References

1) Russel CM *et al*. Blood culture isolates and antimicrobial sensitivities from 427 critically ill neonatal foals. Austr Vet J 2008;86:266-271.
2) Corley KTT, Hollis AR. Antimicrobial therapy in neonatal foals. Equine Vet Educ 2009;21:436-448.