

Antibiotic susceptibilities of biofilm producing bacteria isolated from horse wounds

ABSTRACT

The occurrence of wounds in horses is very high due to their flight instinct and the nature of their environment, however, the high risk of infection by environmental pathogens complicate the healing process with most wound becoming chronic. Biofilm formation has been identified as a major consequence of infected wound, implicated in chronic nonhealing wound. In this study, we demonstrated biofilm forming bacteria in horses wound and described their antibiotics susceptibility. Swab samples from wound of 30 horses were cultured and the biofilm forming potential of the bacteria isolate was assessed. The susceptibility of the biofilm state to ciprofloxacin (CIP), gentamycin (CN) and tetracycline (TE) were also determined. A total of 65 bacterial isolates were identified from the wound, of which 48 prominent bacteria isolates were tested for BFP with 8.3% being strong biofilm formers, 6.3% moderate, 68.7% weak and 16.7% non-biofilm formers. There was significantly ($P < 0.05$) higher minimum biofilm eradication concentration (MBEC) for the three antibiotics tested against the biofilm formers than the minimum inhibition concentration (MIC) required to inhibit the bacteria growth in their planktonic state. The MBEC was highest for the strong biofilm formers, follow by moderate and weak biofilm formers. CIP has the least MBEC for all the isolates tested. In conclusion, there is presence of bacteria biofilm in equine wound and irrespective of the type of biofilm formers, susceptibility to antibiotic is low as higher antibiotics concentrations is required to eradicate the bacteria in biofilm state.

Keyword: Bacterial biofilms; Horse; Wound; Antibiotic susceptibility