

TOPICALLY-USED GENTAMICIN ATTACHED TO NANOFIBRE MICRO-DISPERSED OXIDISED CELLULOSE COMPARED WITH GENTAMICIN ATTACHED TO COLLAGEN FOAM IN AN ACUTE WOUND INFECTION MODEL – AN EXPERIMENTAL STUDY

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Aim: The aim was to examine the effect of topically-used gentamicin attached to a carrier, micro-dispersed oxidised cellulose (MDOC) in nanofibre form, in acute wound infection treatment and to compare it with gentamicin attached to collagen.

Methods: Twelve female domestic swines were used in a model of a full-thickness infected dermal wound. The effectiveness of both the materials in infections caused by *Staphylococcus aureus*, *Pseudomonas aeruginosa* and *E. coli* was tested.

Results: The effectiveness of both gentamicin with MDOC and gentamicin with collagen was comparable in *Pseudomonas aeruginosa* and *E. coli* infections according to microbiological findings. With *Staphylococcus aureus* infections there was a significantly higher percent of negative cultures if MDOC with gentamicin was administered. When macroscopically assessed, 100% of infected wounds treated by gentamicin attached to MDOC were without signs of local infection compared with only 16,7% when gentamicin attached to collagen foam was used.

Conclusions: When combined with a nanofibre MDOC carrier, topically-used gentamicin seems to be rendered more for treatment of full-thickness skin infections. The positive influence of MDOC on healing process of dermal wound was shown and a resulting good haemostatic effect confirmed.