EVALUATION OF ANTIMICROBIAL ACTIVITY OF AN ADVANCED WOUND DRESSING

Sarah Bamford¹, David Williams¹, Keith Cutting².

¹Cardiff University (Cardiff, United Kingdom)
²Buckinghamshire New University (Uxbridge, United Kingdom)

Aim: Chronic wounds are a major cause of patient morbidity and mortality. Since microbial colonisation is considered a contributing factor, reducing microbial load using antimicrobial dressings provides an important tool in chronic wound management.

In this study, the in vitro antimicrobial activity of an advanced wound dressing based on Hydration Response Technology (HRT) was assessed.

Method: In experiments, dressings were hydrated with S. aureus in live / dead bacterial staining solution. Using confocal laser scanning microscopy, estimation of the relative levels of live / dead bacteria was determined over 24 h.

Results: Live / dead staining showed that all bacteria were killed in the dressing over 24 h. Interestingly, early examination (within 3 h) showed that certain fibres exhibited significant antimicrobial activity.

Conclusions: In vitro studies indicated that the analysed dressing has antimicrobial activity against Staphylococcus aureus highlighting the potential value of the dressing for chronic wound management. Further studies will expand the range of challenge strains and incorporate time-lapse evaluation of the antimicrobial effect.