IODOSORB® 0.9% Cadexomer Iodine Gel demonstrated statistically significant reductions in wound biofilms ex vivo and in vivo compared to a carboxymethyl cellulose (CMC) silver dressing in porcine wound biofilm models

CMC silver dressing demonstrated limited effect against biofilms with results similar to the sterile gauze control in vitro

Study overview

• Antibiofilm efficacy of IODOSORB was compared with CMC silver dressing (Aquacel® Ag+ Extra,† ConvaTec, Deeside UK) and a sterile gauze control
  – Ex vivo porcine skin explant model: single strain biofilms of Pseudomonas aeruginosa and Staphylococcus aureus
  – In vivo porcine wound model: mixed biofilm including P. aeruginosa and Staphylococcus epidermidis

Key results

Ex vivo model

• IODOSORB significantly reduced levels of P. aeruginosa and S. aureus biofilms compared to CMC silver dressing and gauze from 24hr through to 3 days (p<0.0001)
  – CMC silver dressing demonstrated significantly greater growth of P. aeruginosa biofilm compared to the gauze by 24, 48 and 72hr (p<0.0001, 0.0015 and 0.0134, respectively; Figure 1)
  – CMC silver dressing and gauze did not substantially reduce S. aureus biofilm over the 72hr test period (Figure 2)
In vivo model

- IODOSORB™ resulted in substantial reductions versus gauze in total counts and pseudomonal counts; this effect was also significantly greater than CMC silver dressing (2.3 vs 1.5 log\(_{10}\) CFU/g, p<0.05 and 3.3 vs 1.85 log\(_{10}\) CFU/g, p<0.01, respectively).
- IODOSORB significantly reduced staphylococcal counts compared to gauze (p<0.05); CMC silver dressing did not (p>0.05).

Microscopy and histopathology of tissue from in vivo model

- Substantial reductions in the biofilm character of the infection and level of bacteria were demonstrated with IODOSORB compared to CMC silver dressing and gauze (Figure 3).
- IODOSORB had significantly fewer samples with Gram– bacteria (p≤0.0001 versus CMC silver dressing and gauze), and mixed Gram+/– bacteria (p=0.047 versus CMC silver dressing and p<0.0001 versus gauze); however, samples containing Gram+ bacteria were similar for IODOSORB and CMC silver dressing (p=0.744), both a significant decrease compared to gauze (p<0.02).
- Only IODOSORB had samples where no bacteria were detected (25%; p=0.017).

Conclusion

IODOSORB demonstrated statistically significant reductions in biofilms both ex vivo and in vivo in porcine wound biofilm models compared to a CMC silver dressing specifically designed against biofilms and gauze.

Considerations

- Further clinical studies are required to determine the ideal duration of treatment in patients to optimize the effect of IODOSORB against biofilms in vivo.

Study citation

Available at: International Wound Journal

For detailed product information, including indications for use, contraindications, precautions and warnings, please consult the product’s applicable Instructions for Use (IFU) prior to use.