Evidence in focus

Study summary

Roche, et al. *Int Wound J* (2019)*

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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. aeuringosa* 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)

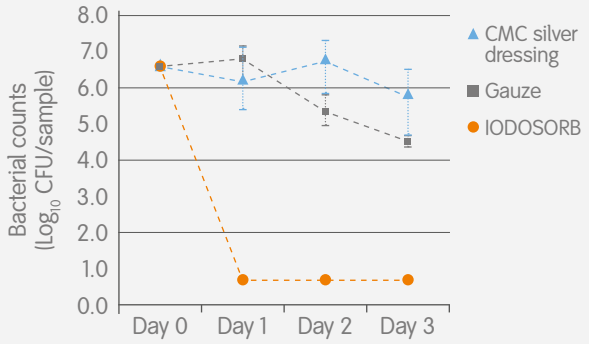

Figure 1. *P. aeruginosa* biofilm counts following treatment with IODOSORB, CMC silver dressing and gauze control over a 3 day period (n=4 for biofilm counts). Values shown are mean counts with 95% confidence intervals.

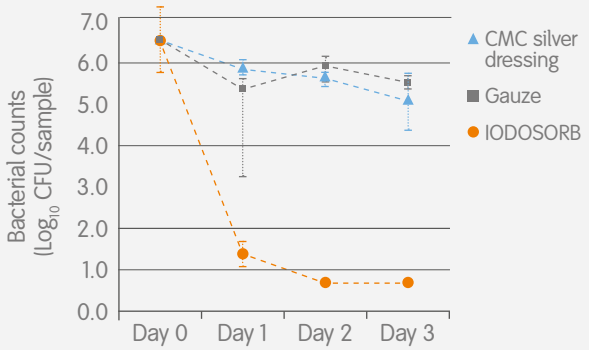

Figure 2. *S. aureus* biofilm counts following treatment with IODOSORB, CMC silver dressing and gauze control over a 3 day period (n=4 for biofilm counts). Values shown are mean counts with 95% confidence intervals.

†Aquacel Ag+ Extra is marketed as Aquacel Ag Advantage in the USA

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Evidence in focus (continued)

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)

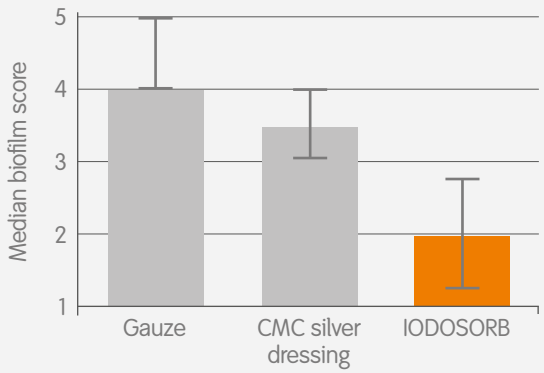

Figure 3. Median values of histopathology scoring for biofilm character of the wound infection. Error bars represent interquartile range.

- IODOSORB had significantly fewer samples with Gram– bacteria ($p\leq0.0001$ 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

*Roche ED, Woodmansey EJ, Yang Q, Gibson DJ, Zhang H, Schultz GS. Cadexomer Iodine effectively reduces bacterial biofilm in porcine wounds ex vivo and in vivo. *Int Wound J*. 2019;1-10. https://doi.org/10.1111/iwj.13080

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.

Wound Management, Smith & Nephew, Medical Ltd, 101 Hessle Road, Hull HU3 2BN, UK
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