IN VITRO EFFICACY OF KERLIX® A.M.D. GAUZE WHEN USED WITH A PRIMARY DRESSING

Robert Orr
Wound Care Research and Development
The Kendall Company, a division of TYCO Healthcare Group LP
Mansfield, MA

INTRODUCTION:

Gauze dressings are an important component for covering and protecting wounds. Binding an antimicrobial agent to the gauze further protects the wound from microbial contamination. **KERLIX® A.M.D.** gauze, containing the antimicrobial Polyhexamethylene Biguanide (PHMB), was cleared by the FDA for use as an effective barrier to nosocomial infection. In addition, clinical case studies demonstrate **KERLIX® A.M.D.** gauze reduces flora in the wound when in direct contact with wound tissue. Gauze dressings however are seldom used as a primary contact layer, unless debridement is warranted. For this reason, we have investigated the ability of **KERLIX® A.M.D.** gauze to control microbial growth *in vitro* when used in conjunction with non-adherent primary dressings. This study will evaluate the efficacy of **KERLIX® A.M.D.** when used with Telfa® Dressing, Owens™ Dressing, and Curity™ Oil Emulsion Dressing as a primary contact layer.

METHODS:

A novel *in vitro* model for evaluating the efficacy of an antimicrobial dressing was developed. This model provides information regarding the dressing's ability to reduce wound flora. The test can be set up so that the antimicrobial dressing is in direct contact with the seeded agar plate or placed behind a primary contact layer.

For this experiment, a seeded agar plate is prepared with *Staphylococcus aureus* (103 CFU/ml). The primary contact layer is then placed on the seeded agar plate followed by the **KERLIX® A.M.D.** gauze dressing. To simulate wound exudate, the gauze dressing is inoculated with a small volume of saline. Controls containing no antimicrobial in the dressing are set up in a similar manner, as well as seeded plates with no dressings to confirm normal growth of the organism following incubation. Triplicate plates are made to evaluate efficacy at 24 and 48 hours. Following 24 hours the dressings are removed from the agar plate and properly discarded. From each plate a core biopsy of agar is removed and processed so that the remaining organisms can be quantified. This procedure is repeated to acquire 48-hour data.

RESULTS:

Quantitative results are provided in Table 1.

Calculated CFU/ml for Staphylococcus Aureus Following Dressing Exposure

Incubation Period (Hrs.)	KERLIX® A.M.D.			KERLIX®			CONTROL		
	Exp.1	Exp.2	Exp.3	Exp.1	Exp.2	Exp.3	Exp.1	Exp.2	Exp.3
	Telfa®	Owens™	Curity™ Oil Emulsion	Telfa®	Owens™	Curity™ Oil Emulsion	No Dressing	No Dressing	No Dressing
24	0	0	0	2.17×10^{8}	2.66×10^{9}	4.0×10^{7}	2.93×10^{9}	8.22×10^{9}	3.05×10^{8}
48	0	1.65×10^{6}	0	7.68×10^{9}	3.14×10^{9}	5.13×10^{8}	8.92×10^{8}	6.28×10^{9}	6.45×10^{8}

Table 1.

DISCUSSION:

The above *in vitro* data demonstrates the ability of **KERLIX® A.M.D.** gauze in conjunction with a primary dressing to reduce microbial growth. We speculate that a biocidal amount of the PHMB elutes from the gauze and penetrates through the primary dressing, therefore killing the microorganisms on contact. The data is encouraging considering each primary contact layer has different physical and chemical properties. While these results are compelling, clinical evidence should confirm the results demonstrated by this experiment.

tyco Healthcare
Kendall

15 Hampshire Street
Mansfield, MA 02048
1-800-962-9888
508-261-8000
www.kendallhq.com
For International locations please see
www.tycohealthcare.com

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