Assessment of Diaper Clogging Potential of Petrolatum Based Skin Protectants

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BACKGROUND

Petrolatum based skin protectants are often used both prophylactically and as a treatment for incontinence dermatitis. Anecdotal reports, however, indicate a potential incompatibility between petrolatum based skin protectants and absorbent products such as diapers.

OBJECTIVE

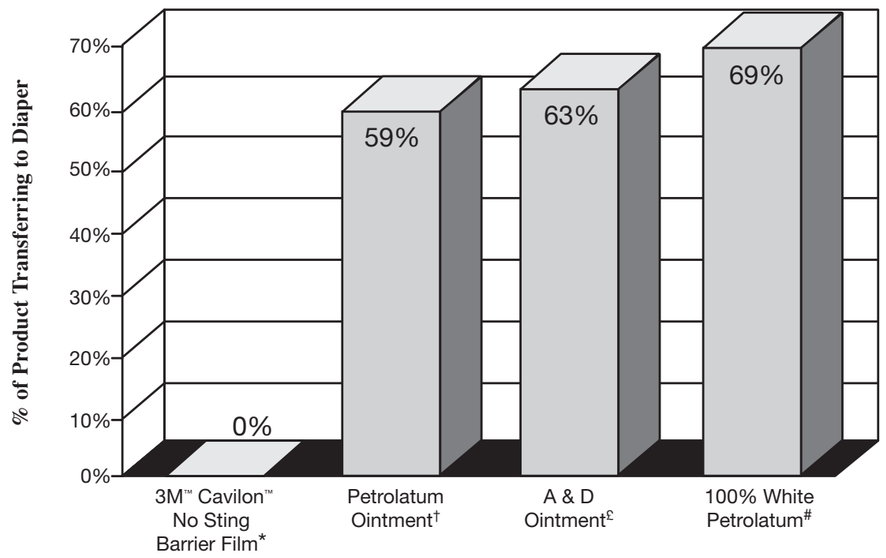
To determine potential impact of petrolatum based skin protectants on diaper efficacy.

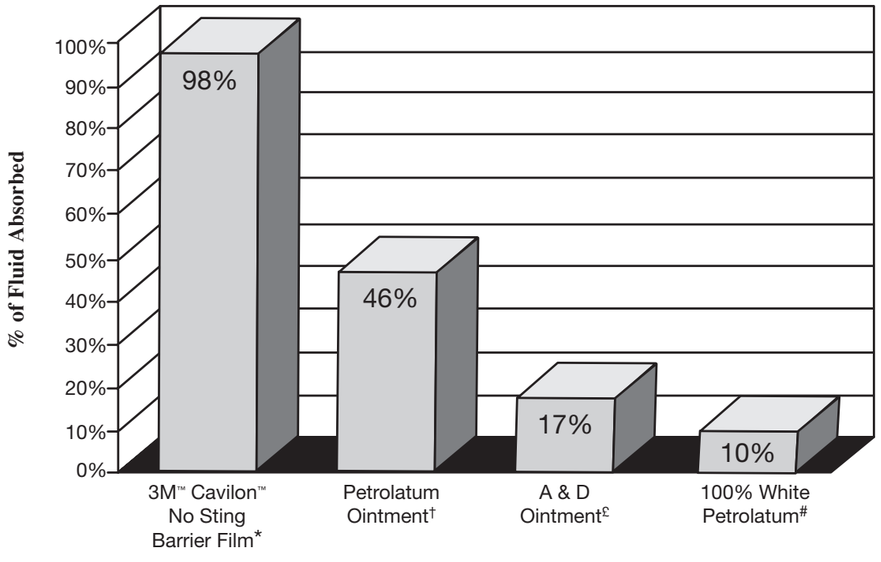
METHODOLOGY

This study was a balanced block design allowing for cross-comparison of three commercially available petrolatum based skin products commonly used in the treatment of incontinence dermatitis. A non-transferring, polymeric film forming skin protectant was used as a control. Test products (0.3 ml) were applied to 6 cm x 6 cm test sites on the volar forearms of sixteen subjects. One minute after application, pre-weighed mini-diapers (cut to size in a manner that maintained structural integrity of the original diaper) were applied to the test sites in a manner to simulate normal diaper wear. After a five minute wear time, the mini-diaper was re-weighed to determine % of product transferred from the skin to the mini-diaper. The mini-diaper was then re-applied to the same test site and 3 ml of a synthetic urine solution was introduced between the skin and the mini-diaper in a steady flow over a 15 second time period. The mini-diaper was then removed and wet weight determined. The mini-diaper was then allowed to thoroughly dry over a 24 hour period to determine dry weight and, thus, amount of fluid uptake.

70-2008-7317-5 (14.5)

Transfer from Skin to Diaper





RESULTS

Results indicate significant differences ($p < 0.01$) both in "% transfer" and in "fluid absorption" between the three petrolatum based barrier products and the non-transferring polymeric film control product. Surprisingly, 59% to 69% (by weight) of the petrolatum based products tested in this study transferred from the skin to the mini-diaper within five minutes of application. This resulted in a 54% to 90% reduction in diaper efficacy. By contrast, the polymeric control product did not transfer to the diaper and did not interfere with normal diaper function.

CONCLUSION

These data indicate that petrolatum based skin protectants possess significant potential for interference with normal diaper function, while polymeric film forming products do not. Furthermore, these data suggest the need for additional study in a true clinical environment.

* 3M™ Cavilon™ No Sting Barrier Film
† Sween Peri-Care® Moisture Barrier Ointment
£ Fougera® Vitamin A + Vitamin D Ointment
Vaseline® White Petrolatum Jelly