In vitro test of eight wound dressings with silicone adhesive: Fluid handling capacity and absorption under compression

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Introduction

Absorption and exudate management is crucial for the performance of modern wound dressings. Even thin, flexible foam dressings, which are useful for awkward or extra mobile body areas should not compromise on their ability to absorb and manage relevant amounts of exudate.

Absorbent wound dressings are often used under compression therapy when applied to venous leg ulcers. Therefore, to give a complete picture of the performance of the wound dressings, fluid handling capacity as well as absorption under applied compression should be evaluated.

Aim

To compare the in vitro absorption and fluid handling capacity of two new dressings with silicone adhesive (A and F) with existing silicone dressings.

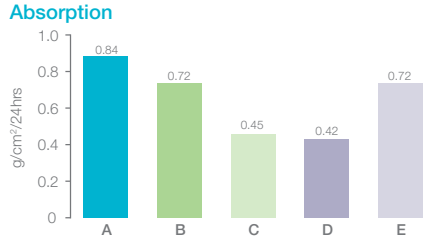
Methods

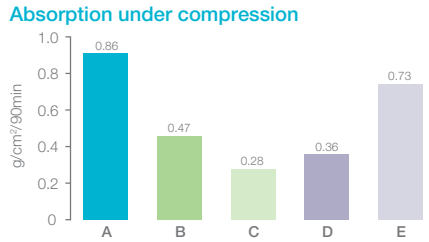
The dressings were tested for 24h fluid handling capacity and 90 min absorption under 40 mm Hg pressure. A minimum of three replications were performed.
The dressings tested were: (A) Biatain® Silicone, (B) Mepilex® Border, (C) Allevyn◊ Gentle Border, (D) AQUACEL® foam, (E) Allevyn◊ Life, (F) Biatain® Silicone Lite, (G) Mepilex® Lite and (H) Allevyn◊ Gentle Border Lite.

Fluid handling capacity was tested according to the method described in EN13726-1 section 3.3 (24h permeability and absorption). Dressing samples were mounted in Paddington cups that were weighed before and after addition of 20 ml Solution A. After 24h in a climate cabinet, the cups were weighed to register permeability. The fluid was removed and the cups were weighed to register absorption.

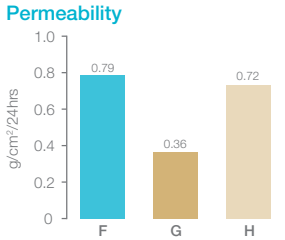
For the test of absorption under pressure dressing samples of Ø30 mm were weighed and placed on ceramic filter plates in Petri dishes and pressed down to the clinical conditions of 40 mm Hg. 45 ml Solution A was added without direct contact with the foam. After 90 min the remaining liquid was removed and the wet samples were weighed.

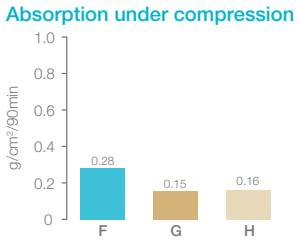
Results – Silicone dressings





Results – Thin (Lite) silicone dressings





Conclusions

The new dressing with silicone adhesive (dressing A) had the highest absorption capacity and permeability, as well as absorption capacity under compression.

Among the three thin (Lite) silicone dressings the new silicone dressing (dressing F) had the highest absorption capacity and permeability, as well as absorption capacity under compression.