Fluid handling and negative pressure delivery in a multi-layered absorbent AIRLOCK™ Technology dressing

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Introduction

• A dressing’s ability to handle fluid is important as excess fluid can lead to maceration of the wound area

• Dressings with AIRLOCK Technology (Figure 1) handle wound exudate effectively and distribute negative pressure evenly across the whole dressing supporting efforts to reduce the likelihood of maceration

• In vitro experiments were undertaken to evaluate fluid handling capabilities and negative pressure delivery when a dressing with AIRLOCK Technology* was applied to models of low and moderately exuding wounds

References

3. Data on file DS/18/015/R. January 2018

Figure 1. Composition of dressing* showing AIRLOCK Technology layer

*Dressing used: PICO™ (Smith & Nephew)
**Materials and methods**

- Models simulating low and moderate exuding wounds were used to evaluate dressing wear time (Figure 2)
- Pressure monitoring was conducted throughout testing
- Experiments were conducted in triplicate using 10cm x 20cm dressings*

![Diagram of wound model setup](image)

*Dressing used: PICO® (Smith & Nephew)
Results

• Testing demonstrated that fluid was managed effectively by the dressing for moderately exuding wounds by both absorption and evaporation (Table 1)
  – Results were similar under low exudate conditions over 7 days (data not shown)

• Upon removal of the dressing there was no pooling of fluid demonstrating that it had been successfully managed
  – Similarly, no leakage into the border was observed

• Negative pressure was delivered across the whole dressing for 4 days under moderate exudate conditions (Table 2)
  – Similar results were achieved under low exudate conditions over 7 days (data not shown)

• Negative pressure underneath the dressing was shown to be delivered over the full pad area for the duration of all tests

Table 1. Negative pressure delivery across the dressing* in a 4-day model of moderately exuding wounds

<table>
<thead>
<tr>
<th></th>
<th>Dressing 1</th>
<th>Dressing 2</th>
<th>Dressing 3</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average pressure recorded (mmHg)</td>
<td>-80</td>
<td>-80</td>
<td>-80</td>
<td>-80</td>
</tr>
<tr>
<td>Duration of maintenance of -60 to -100 mmHg</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 2. Fluid handling of the dressing* in a 4-day model of moderately exuding wounds

<table>
<thead>
<tr>
<th></th>
<th>Dressing 1</th>
<th>Dressing 2</th>
<th>Dressing 3</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluid absorbed by dressing (%)</td>
<td>8</td>
<td>9</td>
<td>12</td>
<td>10</td>
</tr>
<tr>
<td>Fluid evaporated (%)</td>
<td>91</td>
<td>90</td>
<td>87</td>
<td>89</td>
</tr>
</tbody>
</table>

*Dressing used: PICO™ (Smith & Nephew)
Conclusions

• In summary, this dressing with AIRLOCK Technology* delivers negative pressure of -80mmHg successfully over the full pad area in low and moderately exuding wound models
  – Therefore, treatment extended beyond the incision line to a wider zone of injury

• Furthermore, this dressing meets the fluid handling requirements for low and moderately exuding wounds¹

• An average nominal pressure of -80mmHg across the whole dressing was achieved, even as the dressing became saturated

References


* Dressing used: PICO™ (Smith & Nephew)

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.