Piloting an Alternating Pressure Overlay to Mitigate Pressure Injury

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Introduction

• Pressure injuries are a painful, costly, and preventable complication.

• The presence or absence of a pressure injury is a nurse sensitive indicator and reflective of quality nursing care (Elliot, McKinley, & Fox, 2008).

• The patient in the peri-operative setting is at risk for the development of pressure injuries due to inherent risk factors associated with surgery (Engels, et. al., 2016).
Background

• Two head/neck patients sustained pressure injuries following long surgical procedures during a two year period.

• Completed review on
  – Current practice
  – Best evidence-based practice
    • AORN
    • NPUAP/EPUAP
  – Assessment of surgical population

• Identified need for increased vigilance and pressure injury prevention strategies.
Materials and Methods

• Interdisciplinary team assembled to investigate and evaluate additional measure to mitigate pressure injury development.

• Alternating pressure overlay selected as supplementary measure of prevention.

• Over a 12 month period an alternating pressure overlay was placed on operating room table for
  – Head/Neck procedures lasting four hours or greater.
Purpose

- To pilot an alternating pressure overlay to mitigate intra-operative pressure injury of head/neck patients when surgery was scheduled for four or more hours.
Measures

- **Inclusion Criteria**
  - Surgery scheduled for four hours or more.
  - Complete medical record charting of the overlay.

- **Exclusion Criteria**
  - Incomplete medical record charting of overlay.
  - Error of overlay power console during procedure.
Outcomes

• 119 head/neck patients assessed and assigned for alternating pressure overlay.

• 109 patients (92.4%) had complete overlay medical charting.

• One (0.9%) patient developed pressure injury
  - Case review revealed indirect contact with overlay where pressure injury occurred therefore excluded.

• Pressure injury occurrence decreased from 3 to 0 after implementation.
Patient Gender

More male patients than females patients

<table>
<thead>
<tr>
<th>Gender</th>
<th>Number of Patients</th>
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<tbody>
<tr>
<td>Female</td>
<td>39</td>
</tr>
<tr>
<td>Male</td>
<td>70</td>
</tr>
</tbody>
</table>
Patient Age

Average age 58.14 years
Surgical Time

Average surgical time: 5 hours 37 minutes
Pre Pilot vs. Post Pilot Pressure Injury Occurrence

Pressure injury occurrence decreased to 0
Cost/Benefit Analysis

• Reviewed cost of
  – Pressure injury
  – Power console
  – Individual alternating pressure overlay

• Estimated benefit of $86,920.

<table>
<thead>
<tr>
<th>Cost/Benefit Estimate</th>
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<tr>
<td>$43,180/PI x 3 PI = $129,540</td>
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<tr>
<td>$24,975/console x 1 console = ($24,975)</td>
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<tr>
<td>$3,529/overlay x 5 overlay = ($17,645)</td>
</tr>
<tr>
<td><strong>Estimated Benefit</strong> $86,920</td>
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Conclusions

• Correct application and utilization of an alternating pressure overlay may be an effective supplementary measure to mitigate risk of pressure injury.

• Useful addition to pressure injury prevention practice in the peri-operative setting.

• Implications for Practice
  - Consider expansion to surgical cases scheduled for 3 hours or greater regardless of service line.
Literature Cited


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