

Preventing peri-operative pressure ulcers - evaluation of a sacral dressing and an active overlay.

Presented at Fall SAWC, Las Vegas, NV, October 7-9, 2016. Poster Number: CR-056

BACKGROUND:

Almost 23% of hospital acquired pressure ulcers (HAPUs) are acquired intra-operatively during surgeries that last more than three hours, and the average estimated cost of treatment is \$750 million ~ \$1.5 billion per year. The current standard of care for PU prevention relies on turning and repositioning patients at least every 2 hours or using powered surfaces to effectively redistribute body weight - however these strategies cannot be implemented during surgeries. Most operating room (OR) support surfaces are static foam-based mattresses and do not provide active pressure management for body areas at high risk for PUs. Sacral dressings are sometimes used as a preventative measure in ORs to provide pressure redistribution and shear reduction.

OBJECTIVE:

To evaluate the effectiveness of DabirAIR® alternating pressure (AP) overlay in off-loading body areas at high risk for pressure ulcer during surgeries when used over various types of operating room (OR) table pads and in conjunction with sacral dressing.



METHODS:

Twelve healthy young and elderly adults (age range: 23-80yrs, BMI range: 19.5-27.4) participated. The interface pressures (IP) for three types of OR support surfaces were measured with and without the AP overlay. All subjects had a foam-based protective dressing applied on their sacrum. The three types of OR pads evaluated were: 1) 2" thick highly resilient foam OR pad, 2) 1.5" thick highly resilient foam OR pad with a 0.5" layer of viscoelastic foam, and 3) 1.5" thick highly resilient foam OR pad with a 0.5" layer of gel. IP data was collected in the supine position for 60 minutes. The peak and average IP under the sacrum was analyzed.

RESULTS:

The AP overlay (in combination with sacral dressing), when placed over the three types of OR pads, provided almost complete off-loading at the sacrum (average and peak interface pressures were below 20mmHg) during the deflation cycles compared to a constant IP of 42mmHg while using the OR pads alone. Use of sacral dressing did not reduce the average and peak interface pressure at the sacrum for all three types of OR pads.

"AP overlay (in combination with SD), when placed over three types of OR pads, provided almost complete off-loading at the sacrum."

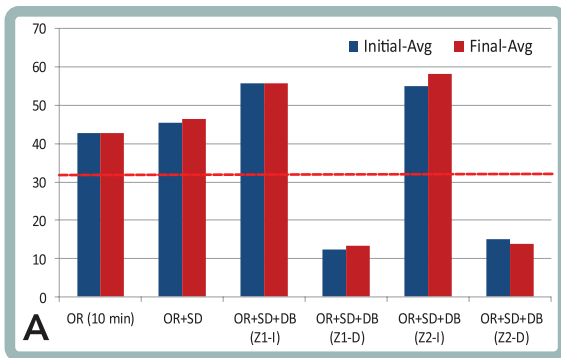


Fig A: Average interface pressure (IP) under the sacrum during the deflated cycles of the overlay were significantly less than the continuous IP observed for the OR pad alone and OR pad+SD conditions. Red dotted line indicates IP of 32 mmHg. OR - Operating table pad; SD - sacral dressing; DB - Dabir overlay; Z1 - Zone 1 of Dabir overlay; Z2 - Zone 2 of Dabir overlay; I - Inflated; D - Deflated.

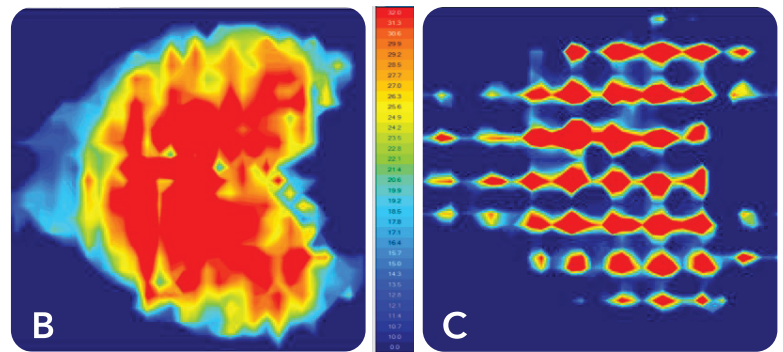


Fig B: IP mapping of pelvic area for OR pad + sacral dressing. Fig C: IP mapping of pelvic area with the overlay placed on top of OR pad + sacral dressing. Red color indicate IP of 32 mmHg or higher. Blue color in Fig C indicates areas that are completely off-loaded by overlay.

CONCLUSION:

The low profile AP overlay provided almost complete off-loading during the deflation cycles, thus allowing the tissues to decompress and reperfuse before any lasting damages can happen. This periodic off-loading is important to reduce the risk for developing pressure ulcers during surgeries and post-operatively.

REFERENCES:

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