IMPLEMENTATION OF A LOW-PROFILE MICROPRESSURE SUPPORT SURFACE FOR THE PREVENTION OF PERIOPERATIVE PRESSURE ULCERS IN CARDIAC SURGERY PATIENTS

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BACKGROUND:
Patients undergoing cardiac surgery are at increased risk for developing perioperative pressure injuries, with reported incidence of up to 29.5%. A low-profile alternating pressure (AP) micropressure support surface with hundreds of comfort nodes, designed to periodically off-load static tissue pressure and minimize shear stress during surgery, was evaluated. The device was recently employed for cardiac operations in a large tertiary care center, and its effect on rates of perioperative pressure injuries was studied.

OBJECTIVE:
The purpose of the interim analysis was to evaluate the implementation of the micropressure support surface in a large hospital setting.

METHODS:
The micropressure support surface was employed for open cardiac operations between June 1, 2016 and November 30, 2016. Operating room staff was asked to complete feedback forms to quantify any barriers to implementation, including issues with device setup, ease of use, and operation. Patient charts were reviewed to determine rates of perioperative pressure injuries (defined as occurring within 72 hours of surgery) in patients for whom feedback forms were completed.
RESULTS:
The micropressure support surface was employed for 2,056 cardiac operations during the evaluation period. Feedback forms were completed by OR staff for 364 cases (average surgery duration 4.8 ± 1.1hrs, BMI 29.0 ± 6.0). Radio frequency interference between the surface and the electrocautery unit and overlay-control unit connection were identified as potential concerns by OR staff. For cases where feedback forms were available, there were zero perioperative pressure injuries after implementation of the micropressure support surface.

CONCLUSION:
A low-profile AP micropressure support surface system can be successfully implemented in a large hospital cardiac surgery setting. No perioperative pressure injuries were reported for surgeries with completed feedback forms during the evaluation period. Concerns about radio frequency interference and support surface connection have been addressed through hardware and software updates, improved device positioning and additional staff training. Further research is needed to better understand the clinical impact of this device on reducing incidence of perioperative pressure injury. A prospective randomized clinical trial (6,000 subjects) to evaluate the clinical efficacy will start shortly at this institution.