

## **REDUCING OPERATING ROOM-ACQUIRED PRESSURE ULCERS IN THE CARDIOVASCULAR PATIENT**

The occurrence of pressure ulcers during operative procedures has only recently been identified as a significant problem (Steward and Magnano. 1988; Vennillion. 1990; Neidig, Kleiber, and Oppliger, 1989; Kemp, Keithley, Smith and Morreale. 1990). In our institution, the ICU nurses identified a continuing problem of cardiovascular patients returning from the OR with "cautery pad burns". Upon investigation the areas appeared to have tissue destruction caused by a one-time pressure insult.

Tissue destruction which results from a one-time pressure insult differs in appearance and progression from the pressure ulcers which develop over time in a person at risk. One time pressure insults may also occur in trauma patients who have been immobilized until help arrived or have been deliberately immobilized secondary to a suspected spine injury. Immediately after the pressure is removed the skin may appear reddened, blistered, or may appear perfectly fine. Within 1 to 3 days a darkened area appears under the skin surface which usually feels "mushy" to touch. The area of destruction, if not extensive, may resolve without becoming an open wound. On the other hand, the area may gradually approach the skin surface and open to reveal a crater deep into muscle and frequently to bone. Because of frog-leg positioning during many CV procedures, the pressure area may be slightly higher on the sacrum than usually seen in the bed-bound patient.

In order to determine the magnitude of the problem, adults having cardiovascular surgery were followed for a four week period. Of the original 37 patients, 2 were lost to follow-up due to death or early transfer to another institution. Two patients had non-pressure related breakdown (one skin tear, one small friction blister). No relationship was found between age and skin breakdown. Surgical procedure did not appear related except for heart transplant patients. Heart transplant patients (2 individuals) had 100% evidence of tissue damage. Overall, the pressure necrosis rate was 20%. For surgeries over 8 hours the rate was 39% and for surgeries over 10 hours the rate was 100%.

A search for a pressure reducing product compatible with the OR environment was made and ROHO Services custom fabricated a cushion the size of the OR table. Data was again collected on the first 37 patients to have cardiovascular surgery with the ROHO DRY FLOATATION<sup>®</sup> pads in place. The overall pressure necrosis rate was 3%. The rate in surgeries over 8 hours was 8% and the rate in surgeries over 10 hours was 0%. In fact, the only instance of tissue damage occurred in a heart transplantation patient whose original surgery lasted 9 hours, 30 minutes and who returned to the OR for a second procedure lasting 7 hours, 5 minutes. This individual showed a quarter-sized reddened area which resolved without opening.

The ROHO DRY FLOATATION Operating Room Pad appears to be an acceptable cushioning system to reduce the incidence of tissue damage during cardiovascular procedures--especially transplants and those in excess of eight hours.

An attractive feature for the busy OR staff was the service component which eliminated cleaning of the soiled pads. Because the ROHO DRY FLOATATION system is reusable, costly disposal by the hospital was also alleviated.

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