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Performance improvement

Use of refined protocols reduces pressure ulcer rates

Each year, 2.5 million people in the US develop pressure ulcers, according to the Agency for Healthcare Research and Quality (AHRQ). Surgical patients are at especially high risk because of immobility during long procedures and anesthesia that blocks sensitivity to pain and pressure.

The Centers for Medicare & Medicaid estimates that each pressure ulcer adds more than $43,000 in costs to a hospital stay, totaling $11 billion per year. Medicare now considers Stage III and IV pressure ulcers a health care-associated condition and will not pay more for the treatment of patients who acquire them in the hospital.

These are compelling reasons for perioperative nurses to be proactive about protecting their patients from pressure ulcers. Currently, however, there is no standard or tool for identifying surgical patients at risk.

Cassendra Munro, MSN, RN, CNOR, has created the Munro Pressure Ulcer Risk Assessment Scale for Perioperative Patients (Munro Scale) to identify perioperative patients at risk for pressure ulcer development. The scale should have its first validation within the year. AORN has partnered with Munro and created a task force for further development of the scale.

OR Manager spoke with Munro and 3 other perioperative nurses who are tackling the problem of pressure ulcers in their hospitals.

Risk tool needed

Many perioperative nurses use the Braden Scale for predicting a patient's risk of acquiring pressure ulcers, and although it's a good tool, it was not intended for use with perioperative patients, says Munro, perioperative educator at St John's Health Center, Santa Monica, California. The Braden Scale, developed in 1987 for patients in long-term care settings, does not take into consideration the many unique factors related to patients who undergo surgery and anesthesia, she explains.

The Munro Scale takes less than 3 minutes to complete and triggers the nurse to implement preventative measures that may reduce patients' pain and potentially save hospitals thousands of dollars.

The Munro Scale's emphasis is on patient risk. "This is not a skin assessment tool; it is a risk assessment tool," she says.

Although some healthcare staff are using preliminary drafts of her scale, Munro says this is premature, and they should not be using the tool. Contributing factors, such as the existence of prior pressure ulcers and albumin and prealbumin levels, are still being investigated and are not included in the draft.

Munro Scale

The Munro Scale has 3 sections—preoperative, intraoperative, and postoperative. The risk level is scored for each phase, with a cumulative score at the end.

The preoperative score is based on factors such as comorbidities, nutritional status, body mass index, and mobility.

The intraoperative score encompasses:

- OR bed surface
- type of anesthesia

- hypotension
- blood loss
- length of procedure.

OR-specific risk factors include:

- pressure (related to time)—many hospitals don't want to replace traditional OR mattresses, which are made for utility, not prevention of pressure ulcers
- anesthesia—vasodilation
- positioning aids—heels, sacrum, occiput
- moisture on or under the patient
- friction and shear during transfers
- body issues—eg, spinal deformities.

Until the scale is completed, OR surgical services directors should heighten awareness and educate staff about the risks, incidence, and prevalence of pressure ulcers, Munro advises.

Task force takes action

A pressure ulcer task force was formed at Stanford University Hospital and Clinics in Stanford, California, to address surgical specialties that continued to have patients with postoperative pressure ulcers—in particular, cardiac and transplant patients who were on the OR bed for long periods of time.

"Our 20-year-old OR mattresses had been replaced, but this had not eliminated the problem," says Sharon Butler, MSN, RN, OR clinical nurse IV at Stanford.

After a literature search, the task force decided to trial an air mattress that would go on top of the existing mattress.

"The air mattress didn't work," says Butler. One patient developed a pressure ulcer, and the OR teams found they could not x-ray through the mattress. In addition, if a patient had to be positioned in steep reverse Trendelenburg position for an emergency situation, the valve at the top of the mattress could open and flatten the mattress.

The task force then decided to replace all OR mattresses with viscoelastic memory foam mattresses, but a couple of pressure ulcers still developed. After this, the positioning protocol was changed to use a pillow under the patient's knees for pressure redistribution, and since then no other pressure ulcers have occurred.

However, notes Butler, the task force decided "we still needed to do something bolder." The OR has purchased 10 alternating-pressure air mattresses that will be placed on the OR bed instead of the viscoelastic mattresses for patients deemed at risk according to a scale and comorbidities developed by task force members.

One reason for coming up with this tool, says Butler, is that it's going to become a nursing protocol to order specialty beds and silicone foam ulcer-preventative dressings independent of a physician. "If a patient reaches a certain number on the tool, the mattress will be used," she explains.

The silicone foam dressing, which is applied to the sacrum to prevent moisture, has been very successful, she adds. The dressing is put on all cardiac and transplant patients, either in preoperative holding or on the table by the circulating nurse before the procedure.

Problems have occurred with these dressings on the patient care unit because the nursing staff weren't looking under them during every shift like they were supposed to. The dressings can remain on the patient up to 7 days.

"We think a pressure ulcer was possibly caused because the dressing wasn't checked," notes Butler. "This is why we need a nursing protocol. If there is not an order on the chart, it can get overlooked."

Mattresses replaced

During an assessment of perioperative skin care practices at Harris Health System in Houston, Texas, a work group focused on improving skin care practices in the OR recommended replacing existing OR mattresses with pressure-redistributing mattresses composed of viscoelastic memory foam and gel. The mattresses were about 20 years old.

"I discovered that, based on the literature, the best surface for patients in the OR was a mattress composed of pressure-redistributing materials," says Megan Dooman, BSN, RN, OR skin care champion at Harris.

As part of the initiative to improve intraoperative skin care, all of the old mattresses at the facility were replaced with the memory foam-gel combination mattresses. They are layered with viscoelastic memory foam on the top and bottom with a layer of gel in the middle, strategically placed at pressure point areas.

"A comparison between hospital-wide pressure ulcer rates of all hospital inpatients the quarter before changing the mattresses and the quarter after showed a very significant decrease in hospital-acquired pressure ulcers from 0.77 to 0.32, a 58.4% decrease," says Dooman.

Although the data include both surgical and nonsurgical patients, changing the OR mattresses was the only new intraoperative skin care intervention between quarters. Since that time, the OR also has replaced all of the foam heel and ulnar padding with gel protectors and gel-positioning devices.

The literature showed that foam padding is not the best source for pressure relief of bony prominences; off-loading and padding are better. "OR nurses have been padding patients' heels and bony prominences with foam for years, but we actually found that the use of foam padding on top of our new viscoelastic foam-gel layered mattresses took away from its pressure-redistributing properties," notes Dooman.

Gel heel and elbow pads were purchased for additional padding when necessary. Gel pads were used for high-risk patients and for times when the mattress was positioned such that the gel layer was not in the typical pressure point area, where the feet and elbows normally rest.

"It is so essential for OR nurses to understand their role in skin protection and the effects it can have on patient outcomes," Dooman says. "As a perioperative nurse and skin care champion at my facility, skin care is one of my passions."

Bundled approach works

A 3-year project to standardize prevention strategies for intraoperative-related pressure ulcers at Ochsner Medical Center in New Orleans led to a drop in pressure ulcer rates from 1.51 in 2009 to 0.16 in 2011, per 1,000 procedures. Based on these rates, estimated annual cost savings could exceed $700,000, notes Susan Overman, BSN, RN, CNOR, clinical coordinator for abdominal, transplant, and peripheral vascular surgery.

In 2009, while investigating surgery incidence reports for performance improvement, Overman was asked by nursing administration to focus on pressure ulcers. The hospital was trying to improve pressure ulcer rates hospital-wide.

Representatives from all units had weekly conference calls about never events and best practices, and they started learning from one another, says Overman.

OR nurses, surgeons, anesthesia personnel, and wound care specialists collaborated to develop a standard of care for surgical patients at increased risk for pressure ulcers. They came up with a bundle of strategies:

- staff education on risks, prevention, assessment, and documentation of pressure ulcers
- viscoelastic polyethylene-urethane mattresses
- pressure-relieving boots
- gel pad under the sacrum if using a warming blanket
- a sacral silicone dressing for cardiovascular, liver transplant, and neurosurgery patients who are on the OR bed for more than 4 hours.

Bundled components were staged, says Overman. The mattresses were added in 2009, followed by pressure-relieving boots and other strategies 4 months later in 2010.

As Overman and the wound care specialist trialed the different products, they saw their results improve.

"We are still trialing different products as we find out about them, and we are fortunate because we have a nursing administrator dedicated to decreasing the number of pressure ulcers," says Overman. ❖

—Judith M. Mathias, MA, RN

Reference

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