What’s the value of preop bathing?

Preoperative baths or showers to prevent surgical infections have played to mixed reviews. Enthusiasm was dampened after a systematic Cochrane review in 2006, updated in 2009, examined 7 trials and found no clear evidence of a benefit for bathing or showering with chlorhexidine gluconate (CHG) over a placebo.

Preop bathing or showering is recommended by the Centers for Disease Control and Prevention 1999 Guidelines for the Prevention of Surgical Site Infection and by AORN. AORN notes that there is evidence that showers with CHG reduce microbial counts but not enough evidence to link the decrease definitively to a reduction in surgical site infections (SSIs).

Could instructions be the key?

What could be lacking are standardized patient instructions, suggests Charles Edmiston, Jr, PhD, professor of surgery and hospital epidemiology at the Medical College of Wisconsin, Milwaukee.

Edmiston says he reviewed the individual studies included in the Cochrane review and found a number of flaws. Noted among them was the absence of standardized instructions for patients on how to use the CHG.

To test whether patient instructions could make a difference, he and his group conducted a 2-part study reported in 2008 in the Journal of the American College of Surgeons.

In the first part, 10 volunteers were told to shower with CHG but given no instructions. Results showed that in the vast majority, the skin concentration of CHG was below that required to kill skin Staphylococcus.

In the second part of the study, 60 patients were divided into groups to use 4% CHG scrub or 2% CHG disposable polyester cloths and given explicit instructions on how to use the products, including leaving the scrub on for 2 minutes (with a timer in the shower).

Those results found 4% CHG scrub and 2% CHG cloths both yielded significant concentrations on the skin and other anatomical sites. Subjects who showered or cleaned twice with either product had better results than those who did so only once.

Take-away messages

The take-away messages, Edmiston says:

• Patients should shower or cleanse not once but twice with CHG prior to surgery.
• Instructions must be standardized. For example, if using CHG scrub, patients should be told how much to use; specifically how to apply it; to avoid eyes, nose, and ears; and to wait 2 minutes before rinsing it off.
  “If it is going to work, it has to be a standardized practice that is careful-
ly explained to patients,” he says, suggesting this should be part of the pre-
operative education nurses provide.

The research was funded by Sage Products, which makes the 2% CHG cloths. Edmiston says the vendor had no influence over how the study was conducted or the results.

Evidence on CHG cloths

Edmiston’s group has also compared the 2% CHG cloths with the 4% CHG scrub for skin concentrations and reduction of microorganisms.

In an early study, they saw a greater log reduction of microbes in the groin with the 2% cloths compared with 4% CHG.

“We hypothesized that the polyester cloth allowed an exfoliation process to drive CHG into the skin, the sebaceous glands, and hair follicles,” he says.

In the preop shower study published in 2008, the CHG cloths achieved significantly higher skin concentrations than the 4% CHG scrub, even when applied in a standardized process, perhaps because there is no rinsing with the cloths, he told OR Manager.

When the 2% CHG cloths were used at night and in the morning, the concentration was 350 times that needed to kill skin Staphylococci, while the concentration with 4% CHG was 25 times the level needed.

Edmiston pointed out the 2% CHG cloths can be used by patients who can’t shower, enabling them also to achieve high concentrations of CHG on the skin.

Skin irritation?

Does showering or cleaning with CHG cause skin irritation?

Of the study’s 60 subjects, Edmiston says 5 or 6 had episodes of skin irritation, but these were not serious enough to have caused surgery to be canceled. He notes that CHG, as a chemical formulation, could react with other substances, such as lotions, creams, deodorants, or hair removers. He advises telling patients not to apply other products to their skin when using a CHG preparation.

Stepping up infection prevention

A small Minnesota hospital saw its surgical site infection rate for total joint replacements go down after the 2% CHG cloths were introduced. Deb Eiselt, RN, BSN, the hospital’s infection prevention and control professional, reported on the results in Orthopedic Nursing and in a poster session at the Institute for Healthcare Improvement meeting in December 2009.

Lakeview Hospital in Stillwater, Minnesota, began stepping up prevention efforts when its total joint infection rate rose to 2.36%. The cloths were introduced in 2006 after other interventions failed to make a difference. For skin prep, surgeons primarily use iodophors.

“We set up a trial using the CHG cloths in the preop area initially for total joints and spine surgery,” Eiselt told OR Manager. Previously, the patients had used a povidone-iodine scrub. After the trial, the surgeons were on board, and the CHG cloths are now included in the preop order sets.

The total joint infection rate has come down to 1.1% for the 6-OR hospital, which performed 1,034 joint replacements and 632 spine procedures in 2009.

Total joint patients receive the cloths during their preop education class,
called Joint Connection. They are given specific instructions to clean with
the cloth after their last bath or shower before surgery and to allow the skin
to air dry. Other patients use the cloths in the holding area.

“A lot of patients, especially in our Joint Connection class, are knowl-
edgeable about infections, so they are very engaged in what they can do to
prevent an infection,” Eiselt says.

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