Povidone Iodine-Related Burn

How do you protect the patient’s skin under a tourniquet?

A two-year-old girl with bilateral radial polydactyly underwent sequential excision and reconstruction of both thumbs. Tourniquets were used on both arms at 220 mmHg pressure, and wool padding was used under the tourniquets. The patient’s skin was prepared with a 70% alcohol and povidone iodine solution. The procedure lasted 2.5 hours.

After the procedure, health care providers found patches of darkly discolored skin on the patient’s arms just under where the tourniquet cuffs had been. The wool padding was soaked with the povidone iodine solution. A superficial partial thickness burn was noted on the patient’s left arm and a deep partial thickness burn was noted on her right arm. The tourniquets were tested and proved to be functioning normally. The patient’s wounds healed secondarily within four weeks with mild depigmented scarring.

Chemical burns caused by povidone iodine, though rare, have been reported in the literature. Pressure from a tourniquet or from body weight exerted was observed in almost all reported cases. Extended exposure to wetness or moisture leads to skin softening and tissue disintegration, thus making the skin more permeable to povidone iodine. Additional damage can be caused by friction and irritation. In reported cases, the ages of the patients varied, and most of the surgical procedures lasted longer than two hours.

Long-term skin maceration, tourniquet pressure and friction, and exposure to irritating chemicals and alcohol may cause skin damage. Preventive measures include the following:

• Do not let povidone iodine pool under the tourniquet or the patient.
• Drape the patient only after ensuring that the prep solution is dry.
• Keep tourniquet time as short as possible.
• Use a barrier drape or tape around the distal end of the tourniquet to prevent dripping of the prep solution under the tourniquet.

Reference
Contaminated Iodophor in the Operating Room

Are you using multi-dose containers for skin antiseptics?

The infection control department at a Pennsylvania Hospital reviewed microbiology results daily as part of its surveillance program. During one three-week period, the infection control practitioners noted the presence of several unusual gram-negative rods—Agrobacterium radiobacter, Pseudomonas stutzeri, and Chryseobacterium indologenes—from surgical specimens. To determine the source of specimen contamination, they took cultures from multiple areas of the microbiology laboratory; all were negative with the exception of incubator water, which grew Sphingomonas paucimobilis. Manufacturers of the culture plates and swabs were contacted but had not received similar reports from other clients.

The infection control practitioners reviewed the patient’s charts for signs and symptoms of infection, but none of the patients had a surgical site infection. Although they did not suspect that the contamination occurred in the operating room since the specimens came from procedures that occurred in different rooms with different staff members and surgeons, they went to the OR to review the specimen collection procedures.

In a conversation with the OR nurses, the infection control practitioners discovered that iodophor used to scrub and prepare the patients’ skin in the OR was poured from gallon jugs. They cultured the lips of the iodophor jugs from two different operating rooms and found both jugs were positive for Staphylococcus aureus, a common agent in wound infections. Although S aureus was not the organism found in the contaminated specimen cultures, this result demonstrated that large, multiuse containers have the potential to become contaminated, which could increase the risk for surgical site infection.

The gallon jugs were immediately replaced with 4-oz bottles. The infection control department was not able to determine the origin of the gram-negative rods or make any conclusions. At the time this brief report was written, no additional surgical specimens had grown gram-negative organisms.

TAKEAWAY

Large containers of skin antiseptics can become contaminated from prolonged use over time. The more frequently solution is poured, the more opportunity for contamination to occur. Single-use disposable containers for skin antiseptics reduce the risk of using a contaminated solution.

Reference