

Undergarments worn by surgical patients; does it save time or increase patient risk?

Due to the variety of surgical practice settings and the increase in outpatient procedures, Valleylab Clinical Information receives calls from concerned perioperative nurses asking if patients may wear underwear during an electrosurgical procedure or if underwear is a potential electrosurgical fire hazard?

The primary concern seems to be the possibility of nylon underwear causing static electricity. Static electricity is an accumulation of electric charge on an insulated body (1) Physical objects accumulate static electricity in inverse proportion to their conductivity. When two objects come in contact with each other, the object with the higher accumulation of static will discharge to the object with less static accumulation. When an object has a very high static potential, it may overcome the resistance of air (nonconductor) and jump the gap between the two objects, causing an arc across air gaps that is seen as a spark from the heat generated. We have all experienced a "shock" when touching an object that has accumulated static. This occurs more often in dry weather than in high humidity.

Woolens and synthetics can create static electricity in a certain atmosphere; however, the static electricity hazard has been greatly reduced in operating rooms with the control of humidity and the use of nonflammable anesthetics. Maintaining the humidity at 50% to 60% helps to control the factors that contribute to creating, accumulating and maintaining static electricity in the atmosphere.

Undergarments, whether cotton or nylon, have the same fire hazard potential as patient gowns, blankets, or surgical drapes. Any article placed in close proximity to

the patient, combined with the right amount of heat and an oxidizer, could ignite and burn the patient and staff.

Valleylab recommends placing all electrosurgical instruments in a well insulated safety holster when not in use.

There are also non-electrosurgical considerations regarding patient's undergarments. Complete accessibility to the patient and the cleanliness of the patient and personal clothing need to be considered on an individual basis. The patient's undergarments may be restrictive during a long procedure or become stained with prep solution or blood. Any of these conditions, as well as an unexpected need for access, could result in having to cut the garment off the patient during the surgical procedure.

After careful consideration, each surgical practice setting must make its own decision regarding undergarments with the knowledge that static electricity is not the patient safety concern that it was in the early days, when surgical suite climate control was not available and when flammable anesthetics were in use.

Valleylab also recommends referring to 1998 AORN Standards & Recommended Practices Guidelines, Recommended Practice for Traffic Patterns in the Perioperative Practice Setting, page 313. The recommendations are intended to be guidelines for adaptation to various practice settings.

- 1 The American Heritage College Dictionary, 3rd Edition, 1993



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