Recommended Practices for Electrosurgery

The following Recommended Practices for Electrosurgery were developed by the AORN Recommended Practices Committee and have been approved by the AORN Board of Directors. They were presented as proposed recommendations for comments by members and others. They are effective July 1, 2009. These recommended practices are intended as achievable recommendations representing what is believed to be an optimal level of practice. Policies and procedures will reflect variations in practice settings and/or clinical situations that determine the degree to which the recommended practices can be implemented. AORN recognizes the various settings in which perioperative nurses practice. These recommended practices are intended as guidelines adaptable to various practice settings. These practice settings include traditional operating rooms (ORs), ambulatory surgery centers, physicians' offices, cardiac catheterization laboratories, endoscopy suites, radiology departments, and all other areas where surgery and other invasive procedures may be performed.

Purpose

These recommended practices provide guidance to perioperative nurses in the use and care of electrosurgical equipment, including high frequency, ultrasound, and argon beam modalities. Proper care and handling of electrosurgical equipment are essential to patient and personnel safety. Electrosurgery, using high frequency (ie, radio frequency) electrical current, is used routinely to cut, coagulate, dissect, ablate, and shrink body tissue. Ultrasonic dissectors fragment tissue by vibration. Vessel sealing devices use a combination of pressure and heat to permanently fuse vessels and tissue. These recommended practices address all of these technologies and do not endorse any specific product.

Recommendation I

Personnel selecting new and refurbished electrosurgical units (ESUs) and accessories for purchase or use should make decisions based on safety features to minimize risks to patients and personnel.

ESUs and accessories are high-risk medical devices. Minimum safety standards for ESU systems have been developed by the Association for the Advancement of Medical Instrumentation (AAMI), approved by the American National Standards Institute (ANSI), and the International Electrotechnical Commission (IEC).[1]

I.a. ESUs and accessories should be selected based on safety features that minimize patient and personnel injury.[2]

Historically, the most frequently reported patient injury has been a skin injury (eg, burn) at the dispersive electrode site.[2] The risk of this type of injury has been minimized through advances in dispersive pad design and the use of return electrode contact quality monitoring.[2,3]

I.b. ESUs and accessories should be selected to include technology that minimizes the risk of alternate site injuries.

These injuries can result from use of ground-referenced (ie, spark-gap) ESUs that allow electrical current to seek alternate pathways to complete the circuit.[1,4] The use of isolated generator ESUs has minimized this risk.[5]

I.c. ESUs and accessories should be selected to include technology that minimizes or eliminates the risk of insulation failure and capacitive coupling injuries.

During minimally invasive procedures, alternate site injuries have resulted from insulation failure and capacitive coupling.[2,4,6-9] These injuries are far more serious than skin burns and have increased in number with the increased use of minimally invasive surgery.[10] Active electrode monitoring, active electrode insulation integrity testers, active electrode indicator shafts, and visual inspection minimize these risks.[7,9,11-14]

I.d. ESUs and accessories should be designed to minimize the risk of unintentional activation.

Unintentional activation has resulted in patient and personnel injuries. Unintentional ESU activation has been reported as the cause of 56% of alternate site injuries.[2,15] Audible activation tones minimize this risk.[1,15-17]

I.e. Electrosurgical accessories should be compatible with the ESU.

Injuries have resulted when an ESU accessory intended for bipolar use was inserted into monopolar connectors and