Recommended Practices for Use of the Pneumatic Tourniquet in the Perioperative Practice Setting

The following recommended practices were developed by the AORN Recommended Practices Committee and have been approved by the AORN Board of Directors. They were presented as proposed recommended practices for comments by members and others. They are effective January 1, 2007. 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 numerous 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, ambulatory surgery centers, physicians' offices, radiology departments, and all other areas where operative and other invasive procedures may be performed.

Purpose

These recommended practices provide guidelines for use of pneumatic tourniquets, which are primarily used to occlude blood flow, obtain a near bloodless field for extremity surgery, and to confine a bolus of anesthetic in an extremity for intravenous regional anesthesia (IVRA; ie, Bier block). These recommended practices provide information for testing, applying, and cleaning pneumatic tourniquet equipment, and the patient care associated with the safe use of this equipment. Pneumatic tourniquet equipment consists of a pressure regulator with display, connective tubing, and an inflatable cuff. These recommended practices provide general guidelines for developing policies and procedures for safe use of a pneumatic tourniquet in the practice setting. Due to the variety and complexity of current pneumatic tourniquet equipment, policies and procedures should reflect considerations for the specific pneumatic tourniquet system being used.

Recommendation I

Patient safety should be the primary consideration in evaluation, selection, purchase, and use of the pneumatic tourniquet and accessories.

1. Equipment selected should include technology to determine cuff pressure during use.
2. The pressure regulator should be self-calibrating upon activation.
3. If electric, the regulator should have a backup battery for use during a power failure.
4. The pressure display should be visible whenever the cuff is inflated.
5. An audible activation indicator(s) and alarm(s) should be present and loud enough to be heard above other sounds in the OR to alert personnel to a change in pressure and lapse of a designated duration of inflation time.[1]
6. The pneumatic tourniquet electrical cord should be flexible and adequate in length to reach the electrical outlet without stress or require the use of an extension cord.
7. Tourniquet cuffs and tubing should be compatible with the tourniquet regulator and other accessories. The tourniquet tubing should be incompatible with other tubing (eg, intravenous) or labeled to clearly identify that it is part of the tourniquet system. Although the US Food and Drug Administration (FDA) has not received reports of misconnections involving tourniquet tubing, over 300 cases of misconnections of other types of tubing resulting in injury have been reported.[2] Many of these reports involved Luer connections. The Joint Commission for the Accreditation of Healthcare Organizations (JCAHO) has received reports of eight deaths associated with misconnections of tubing.[2]
8. Tourniquet cuffs should be clean. If the cuffs are unable to be adequately cleaned, single-use cuffs should be selected.
9. A variety of sizes and shapes of tourniquet cuffs should be available to meet the needs of the patients treated in the health care organization. Contoured cuffs should be available for use on extremities of patients where there is a significant difference in circumference between the proximal and distal edges of the cuff (eg, those seen in obese patients). Pediatric cuffs should be available for children. Injuries can result from the use of an inappropriate size or shape of cuff.
10. Pneumatic tourniquet technology continues to evolve, changing the way in which limb blood occlusion is achieved. Health care organizations and personnel should stay abreast of evolving technology and its effect on patient care and safety.

Recommendation II

The pneumatic tourniquet and its accessories should be inspected, tested, and maintained according to manufacturers' written instructions.