DEVELOPMENT OF PERIOPERATIVE HYPOTHERMIA MANAGEMENT PROTOCOL FOR SURGICAL PATIENTS

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Introduction: Unintended perioperative hypothermia is occurring in 50-90% of surgical patients, leading to problems such as increased infections, increased bleeding, cardiovascular complications, and delayed recovery. Therefore, it is important to manage the patient’s body temperature integrally.

Identification of the problem: However, there are no guidelines applicable to clinical practice in Korea. In order to prevent perioperative hypothermia, it is necessary to develop an evidence-based integrated management over the perioperative period and a protocol suitable for the domestic clinical situation.

Purpose of the Study: The aim of this study was to develop the protocol that can improve the patient’s comfort and recovery by preventing perioperative hypothermia.

Methodology: This study was a methodological study for the development of a perioperative hypothermia management protocol. As a first step, key factors to perioperative hypothermia management were derived by a literature review. And the preliminary protocol was created by selecting some of the recommendations that might be relevant to key factors from previous well-designed body temperature guidelines and studies of perioperative hypothermia management. Then content validity with twenty-eight experts and user validity with PACU twenty-eight nurses were examined.

Results: Five guidelines and nine protocol studies were included to serve as basis for framing of the preliminary protocol. The final protocol was completed after verifying the preliminary protocol’s content validity and user validity. The content validity index (CVI) was 0.93. The final protocol consisted of six domains: the definition, and the characteristics of perioperative hypothermia management, the patient assessment, and preoperative, intraoperative, and postoperative hypothermia management interventions.

Discussion: The protocol developed in this study was aimed at the prevention of perioperative hypothermia through the selection of high-risk patients through perioperative patient assessment, active management according to patient characteristics, and continuous management through communication between medical staff. We propose a validation study through clinical application.

Conclusion: The protocol developed in this study will provide perianesthesia nurses with guidelines for nursing practice that can prevent perioperative hypothermia.
Implications for perianesthesia nurses and future research: The application of the protocol can be expected to increase the expertise of the perianesthesia nurses in the perioperative hypothermia management.

Figure 1.

**Perioperative hypothermia management algorithm (BT ≤ 37.5)**

**Preoperation (PTR)**
- Room temperature ≥ 24°C
- Assess for risk factors for perioperative hypothermia
- Assess patient temperature
- Normothermia
- Risk for hypothermia
  - Temp < 36°C
  - Cold complaint
  - Symptoms of hypothermia
- CB
- CB + FAW

**Intraoperation (OR)**
- Anesthesia time > 30 min
- Anesthesia time > 2 hr
- Risk for hypothermia
  - Pre-op temp < 36°C
  - Abdominal procedures
  - Intravenous fluids
  - Blood transfusion
- FAW
- FAW + HIA

**Postoperation (PACU)**
- Room temperature ≥ 24°C
- Assess patient temperature
- Normothermia
- Risk for hypothermia
  - Temp < 36°C
  - Cold complaint
  - Symptoms of hypothermia
- CB
- CB + FAW
- Goal: BT ≥ 36°C

**Box 1.** Assessment for risk factors for perioperative hypothermia
- Patients should be managed as higher risk if any two of the following apply:
  - Elderly ≥ 65 years
  - Female
  - ASA grade ≥ 5
  - Combined general and regional
  - Major or intermediate surgery
  - At risk of cardiovascular complications
  - CB: cotton blankets
  - FAW: Forced-air warming
  - WVF: Warmed IV fluid
  - HIA: Heated humidification of anesthetic gases

**Box 2.** Setting temperature
- Forced-air warming: 38°C – 43°C
- Warmed IV fluids: 37°C – 41°C
- Humidification of anesthetic gases: 38°C
- Irrigation fluids: 33°C – 40°C