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Review

Hypothermia in elective surgery: The hidden enemy[☆]

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ABSTRACT

Introduction: Hypothermia is perhaps the most frequent undesirable event in elective surgery. It is estimated that 1 h after surgery has initiated 70–90% of patients will experience hypothermia. In elective surgery, there are several factors leading to temperatures under 34°C. Hypothermia may increase infections, bleeding and need for transfusion as well as the occurrence of an undesirable effect of discomfort and feared such as cold and postoperative shivering that can lead to cardiac complications due to increased sympathetic influence.

Objectives: Review the causes of these low temperatures within intraoperative elective surgery and check if the current alternatives to prevent hypothermia are effective.

Methods: Review of non-systematic literature in PubMed and Medline was performed.

Results: Hypothermia is the most common and least diagnosed undesirable event of patients undergoing surgery although it is easy to detect and preventive measures do not present major difficulties in their implementation.

Conclusions: There are effective measures easy to set up, economical and effective to prevent hypothermia; the most important is the patient warm with hot air under pressure for 1 h and maintenance of air conditioning in the room above 22°C. We just need to understand these measures and start to implement them.

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Hipotermia en cirugía electiva. El enemigo oculto

R E S U M E N

Palabras clave:

Hipotermia
Anestesia, general
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Introducción: La hipotermia es tal vez el evento indeseable más frecuente en los pacientes que van a cirugía programada. Se considera que 1 hora después de iniciada la cirugía el 70 al 90% de los pacientes se encuentran hipotérmicos. En cirugía Electiva en pacientes sanos hay varios factores que llevan a que nuestros pacientes mantengan cifras de temperaturas de 34 °C e inclusive menores. El problema está en que la hipotermia aumenta las infecciones, el sangrado y la necesidad de transfusión, la aparición de un efecto indeseable y temido por el paciente como es el frío y temblor postoperatorio que puede llevar a complicaciones cardíacas debido al aumento del influjo simpático.

Objetivos: Revisar las causas que llevan a estas bajas temperaturas intraoperatorias en cirugía programada y revisar si las opciones que tenemos hoy en día para prevenir la hipotermia pueden ser efectivas.

Métodos: Se realizó una revisión de la literatura no sistemática en las bases de datos PubMed y Medline.

Resultados: La hipotermia es el evento indeseable más frecuente y menos diagnosticado en el paciente que va a cirugía a pesar que es fácil de detectar y las medidas preventivas son relativamente fáciles de instaurar.

Conclusiones: Hay medidas efectivas, fáciles de instaurar, económicas y efectivas para evitar la hipotermia y entre ellas la más importante es el precalentamiento del paciente con aire caliente a presión por 1 hora, el mantenimiento del aire acondicionado de la sala por encima de 22 grados centígrados. Solo necesitamos entender cuales son estas medidas e iniciar a ponerlas en practica.

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Introduction

Hypothermia is the hidden enemy in most elective surgery procedures. Very few anesthesiologists and surgeons take into account this problem intraoperatively despite all the adverse effects caused in the postoperative period. It is considered that 70–90% of patients undergoing surgery develop hypothermia even if surgery only takes 1 h. The restoration of normothermia can take up to 4 h if measures for preventing hypothermia are not taken. Both general and regional anesthesia, contribute to deteriorate protective mechanisms of hypothermia. In addition to the known effects of hypothermia such as increased infection rate, impairment of clotting mechanisms and major bleeding, there are adverse events due to the inevitable tremors that cause great discomfort and unpleasant feeling.

Methodology

A non-systematic literature review was performed in databases such as PubMed and Medline, entering keywords in English: hypothermia in plastic surgery, complications of hypothermia, prevention of hypothermia, maintaining normothermia. The articles were read, those referring to the subject were consulted and according to this methodology 52 references were selected. The results of this review are presented below.

Review

Thermoregulation in humans

Human being is homeothermic and endothermic. This means that, in addition to maintaining its temperature in narrow ranges, can produce heat by itself. In simple terms, the human body is divided into two compartments, one central that produces heat and one peripheral that regulates heat loss. Our tight regulatory mechanisms are made to protect our central compartment at the expense of the peripheral. Thus, the core temperature, and especially the temperature in the brain, is regulated close to 37 °C, with an almost perfect thermoregulation, but at the expense of the skin, which is actually poikilothermic and its temperature resembles the ambient temperature about 33 °C. Under normal conditions, the production of body heat is the result of the basal metabolic rate of internal organs such as the brain and those of the thoracic and abdominal cavity as heart, lung, liver, intestine and kidney. Blood passes through these organs is heated and then is distributed by the cardiovascular system by convection from the central region to skin region.¹⁻⁴

The core that integrates and regulates body temperature and actually acts as a thermostat is in the posterior hypothalamus. Thus the blood temperature that reaches the hypothalamus is the major determinant of the body's response to climate change and is responsible for maintaining a balance

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