

COMPARISON OF THE 'INDITHERM' MATTRESS AND A FORCED AIR PATIENT WARMING DEVICE DURING MAJOR ABDOMINAL AND ORTHOPAEDIC SURGERY

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Background

Inadvertent hypothermia during general anaesthesia for major surgery can be prevented if appropriate measures are instituted early during the perioperative period. Previous studies have identified forced-air warming devices as the method of choice for maintaining normothermia. However they require a unit to blow warmed air into a single patient-use blanket with its attendant costs. The 'Inditherm' mattress is a new warming device that is placed beneath the patient for use throughout the whole of the perioperative period at minimum cost, and can be reused for subsequent patients. If effective this could result in significant cost savings for operating departments. This study aimed to compare the ability of the Inditherm mattress with 'Bair Hugger' warming equipment at preventing inadvertent hypothermia in adult patients undergoing major surgery.

Methods

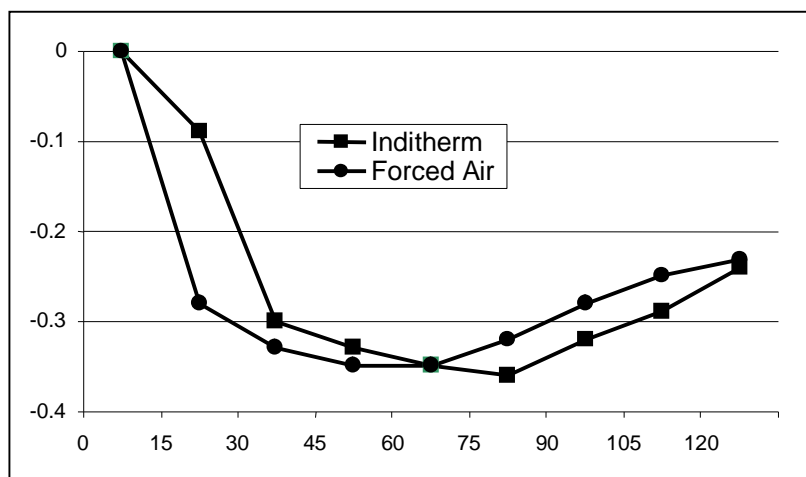
After obtaining informed consent 80 patients scheduled for major abdominal or orthopaedic surgery under general anaesthesia were randomised into two groups according to the method of warming to be used. Group 1 (Inditherm) were placed on a heated Inditherm mattress designed to warm the patient at 37°C from the time of induction of anaesthesia until transfer to the Recovery Unit. Group 2 (Forced Air) had a Bair Hugger blanket heated at 43°C placed over their upper torso and arms as soon as feasible after induction of anaesthesia for the duration of surgery. All patients received intravenous fluids warmed via a Bair Hugger hose throughout surgery and were kept covered with blankets whenever possible. Core temperature was recorded immediately following induction of anaesthesia (T°) and at 15-minute intervals thereafter using an oesophageal temperature probe. Data was compared using ANOVA and unpaired Student t-tests.

Results

The 2 groups were comparable in respect of patient age, body mass index, intraoperative fluid requirements, and duration of surgery. Temperature flux from the time of induction of anaesthesia in each group is shown in Figure 1 (results shown as the mean with standard error bars). Apart from the initial drop in core temperature the two groups were comparable throughout the study period.

Figure 1

Change in temperature ($^{\circ}$ C) from induction of general anaesthesia at 15-minute intervals



Conclusions

This study demonstrates that the Inditherm mattress combined with fluid warming and avoidance of unnecessary body exposure during anaesthesia is able to prevent significant inadvertent hypothermia in patients undergoing major abdominal or orthopaedic surgery. Its performance in this respect was comparable to use of forced-air warming in our patient groups. Use of reusable equipment in this manner could have dramatic cost saving implications within an Operating Department over the course of a financial year.