

THERMOWRAP WARMING OF INFANTS UNDERGOING OPEN ABDOMINAL AND THORACIC SURGERY.

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Introduction

In our practice a combination of simple insulation and warm air mattress does not prevent hypothermia during laparotomy in small infants. A water filled jacket system (Thermowrap) has been used in wide range of children and infants for major surgery (ref 1) although experience in small infants is limited. We have therefore surveyed the efficiency of the Thermowrap and compared it with our best standard practice.

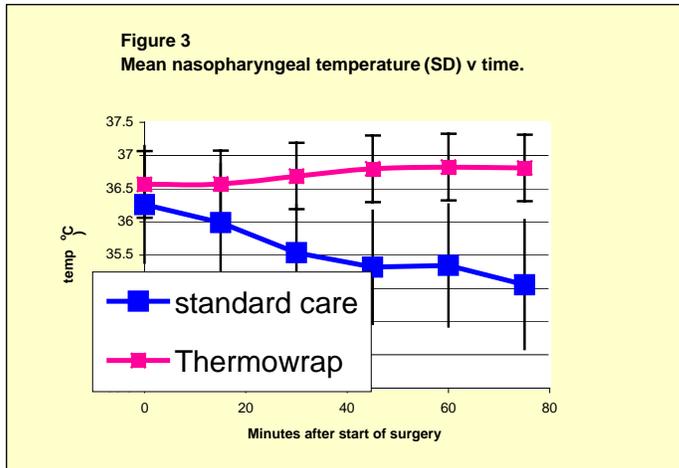
Methods

22 patients were studied in a non-randomised, case-matched, comparison of 2 methods of intra-operative temperature control:

- Standard practice including insulation with cotton wool or bubble wrap of head and body, overhead radiant heating, warming air mattress/duvet
- Thermowrap alone. A garment covering head, trunk and legs through which water is pumped at a variable temperature (30-40degC) controlled to maintain core temperature. Central (nasopharyngeal) and peripheral (palm) temperature was recorded every 15 minutes. Room temperature and anaesthetic technique were recorded, and all procedures lasted at least 60 minutes.

Results

Infants were matched for body weight and operation. Mean weight of all infants was 3.2kg; 9 infants weighed less than 2.5kg. During the first 60 minutes of surgery the mean core temperature was 35.6degC with standard thermal control compared to 36.6degC with the Thermowrap. Six infants had a core temperature of less than 35degC with standard care (lowest 33.7degC) and the lowest temperature recorded with the Thermowrap was 35.6degC. Mean peripheral temperature with standard care was 36.6degC compared to 30.4degC with the Thermowrap. Two infants had a peripheral temperature of less than 34degC with standard care (lowest 33.1degC) compared with 7 with Thermowrap (lowest 27.7degC).



Conclusion

Core temperature is better preserved with the Thermowrap although the peripheral temperature was much lower than expected probably because the hand was outside the garment. Simple insulation should overcome this problem. A further advantage of the Thermowrap is its ability to control body temperature automatically.

References

Katz J, et al. Novel Feedback controlled circular water warming system (Allon 2001) is superior to forced warmed air device in maintaining normothermia in infants undergoing major surgery. Abstract presented at Annual ASA conference, Orlando 2002.