TITLE: Intraoperative Normothermia for Patients during General Surgery: Clinical Effectiveness, Cost-Effectiveness, and Safety

DATE: 29 November 2012

RESEARCH QUESTIONS

1. What is the comparative clinical effectiveness of warming mattresses on the operating tables versus warm blankets or forced air warming units for the maintenance of normothermia during surgery?

2. What is the cost-effectiveness of warming mattresses for the maintenance normothermia during surgery?

3. What is the safety of warming mattresses when they are used with an underbody cautery pad during surgery?

KEY MESSAGE

Two relevant systematic reviews and two randomized controlled trials were identified regarding the use of warming mattresses on operating tables versus warm blankets or forced air warming units for the maintenance of normothermia during surgery. No relevant economic evaluations or studies regarding the safety of warming mattresses when used with an underbody cautery pad during surgery were identified.

METHODS

A limited literature search was conducted on key resources including PubMed, EBSCO CINAHL, The Cochrane Library (2012, Issue 10), University of York Centre for Reviews and Dissemination (CRD) databases, Canadian and major international health technology agencies, as well as a focused Internet search. No filters were applied to limit the retrieval by study type. Where possible, retrieval was limited to the human population. The search was also limited to English language documents published between January 1, 2002 and November 14, 2012. Internet links were provided, where available.

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The summary of findings was prepared from the abstracts of the relevant information. Please note that data contained in abstracts may not always be an accurate reflection of the data contained within the full article.

RESULTS

Rapid Response reports are organized so that the higher quality evidence is presented first. Therefore, health technology assessment reports, systematic reviews, and meta-analyses are presented first. These are followed by randomized controlled trials, non-randomized studies, and economic evaluations.

Two relevant systematic reviews and two randomized controlled trials were identified regarding the use of warming mattresses on operating tables versus warm blankets or forced air warming units for the maintenance of normothermia during surgery. No relevant health technology assessments, non-randomized studies, or economic evaluations were identified. Additional references of potential interest are provided in the appendix.

OVERALL SUMMARY OF FINDINGS

Two systematic reviews\(^1,2\) were identified. The authors of one review\(^1\) reported that the use of forced air warming was more effective than circulating water mattresses in preventing hypothermia in patients undergoing aortic aneurysm repair. The abstract for the second review\(^2\) indicated that studies including circulating water mattresses were included in the review but no specific outcomes regarding their effect on post-operative complications were reported in the abstract.

Two randomized controlled trials were identified comparing circulating water mattresses with a mattress plus warm blankets\(^3\) and lower body forced-air and carbon-fiber resistive-heating blankets.\(^4\) Compared with mattress plus warm blankets, the mattress-only group had a decrease in body temp earlier in the perioperative period and showed signs of hypothermia in the post-operative recovery area.\(^3\) The authors concluded that neither method reduced patients’ complaints of feeling cold. When comparing the circulating water mattress with lower body forced-air and carbon-fiber resistive-heating blankets, body temperature decreased significantly more in the mattress group within the first two hours and at the end of surgery.\(^4\)

No relevant economic evaluations or studies regarding the safety of warming mattresses when used with an underbody cautery pad during surgery were identified.
REFERENCES SUMMARIZED

Health Technology Assessments
No literature identified.

Systematic Reviews and Meta-analyses


Randomized Controlled Trials


Non-Randomized Studies
No literature identified.

Economic Evaluations
No literature identified.

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APPENDIX – FURTHER INFORMATION:

Randomized Controlled Trials – combination treatments


Non-Randomized Studies – combination treatments


Guidance Documents


Additional References