

## CLINICAL SUMMARY

# Perioperative Hypothermia in Cardiac Surgeries

### The Significance of Hypothermia in Abdominal Aortic Aneurysm Repair

#### AUTHORS

G Samoila et al

#### TYPE OF STUDY

Meta-analysis

#### STUDY OBJECTIVE

This paper reviewed studies about the association between intraoperative hypothermia and its effects open and endovascular abdominal aortic aneurysm (AAA) repair.

#### METHODS

All studies about temperature related to aortic surgery or endovascular aortic interventions were searched in MEDLINE, Web of Science, and Trip. Only papers related to intraoperative or postoperative hypothermia and/or normothermia, in either open or endovascular repair of the abdominal aorta were selected. Studies about thoracic or thoracoabdominal aortic repairs were not included.

#### STUDY RESULTS

Eight studies with a total 765 patients met the selection criteria. Patients whose core temperature was maintained at normal levels (normothermia) had a shorter length of stay in the intensive care unit ( $P = 0.0008$ ). It was also observed that hypothermia was independently associated with higher rates of organ dysfunction, in-hospital mortality, and prolonged hospital length of stay. These studies indicated that hypothermia has many adverse effects on outcomes in AAA repair.

#### CONCLUSION

The studies identified in this review have shown that hypothermia has numerous deleterious effects on outcomes in AAA repair - whether or not these adverse outcomes are those such as higher rates of organ dysfunction, mortality or prolonged hospital length of stay, can only be done at the single paper level and not at a literature review level, due to multiple confounding variables. Despite these limitations, the benefits of this review are numerous. This article highlights the importance of core body temperature and outcomes of AAA repair. Furthermore, it brings forth the need to standardize the method of core body temperature measurement and method of rewarming. Given the body of evidence so far, these standardized data collection points will be important for national vascular quality improvement initiatives. Only through rigorous analysis of standardized dataset can firm recommendation regarding peri- and postoperative temperature management be made.

#### ARTICLE AVAILABLE AT

Ann Vasc Surg. 2017 Jan;38:323-331. doi: 10.1016/j.avsg.2016.05.121. Epub 2016 Aug 13

#### YEAR OF PUBLICATION

2017

### The relationship between perioperative temperature and adverse outcomes after off-pump coronary artery bypass graft surgery

#### AUTHORS

Edward L. Hannan, Zaza Samadashvili, et al

#### CENTER AND COUNTRY

New York, USA

#### TYPE OF STUDY

Retrospective analysis

#### STUDY OBJECTIVE

This study aimed to identify the effect of hypothermia and hyperthermia on postsurgical outcomes for off-pump coronary artery bypass surgery.

#### METHODS

This was a retrospective study of 2,294 patients who underwent off-pump coronary artery bypass surgery in 2007. Postoperatively, they were divided into 3 groups: moderately to severely hypothermic ( $34.5^{\circ}\text{C}$ ), mildly hypothermic ( $34.6^{\circ}\text{C}$ – $35.9^{\circ}\text{C}$ ), or mildly hyperthermic ( $37.5^{\circ}\text{C}$ – $38.8^{\circ}\text{C}$ ).

#### STUDY RESULTS

37.7% of patients had mild hypothermia, 9.0% had moderate to severe hypothermia, and 5.6% had mild hyperthermia. Those with moderate to severe hypothermia had significantly higher risk-adjusted in-hospital mortality than patients with normothermia (adjusted odds ratio 3.00; 95% confidence interval, 1.11–8.08). Patients with mild hyperthermia also had significantly higher mortality (adjusted odds ratio 5.04; 95% confidence interval, 1.18–21.55). Besides, significantly higher rates of respiratory failure and unplanned operations were seen in patients with mild or moderate to severe hypothermia. Additionally, patients with mild hyperthermia had a significantly higher rate of respiratory failure than normothermic patients.

#### CONCLUSION

It is important to maintain normal postsurgical core temperatures in patients who have undergone cardiac surgery to minimize or avoid death and complications.

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#### YEAR OF PUBLICATION

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