

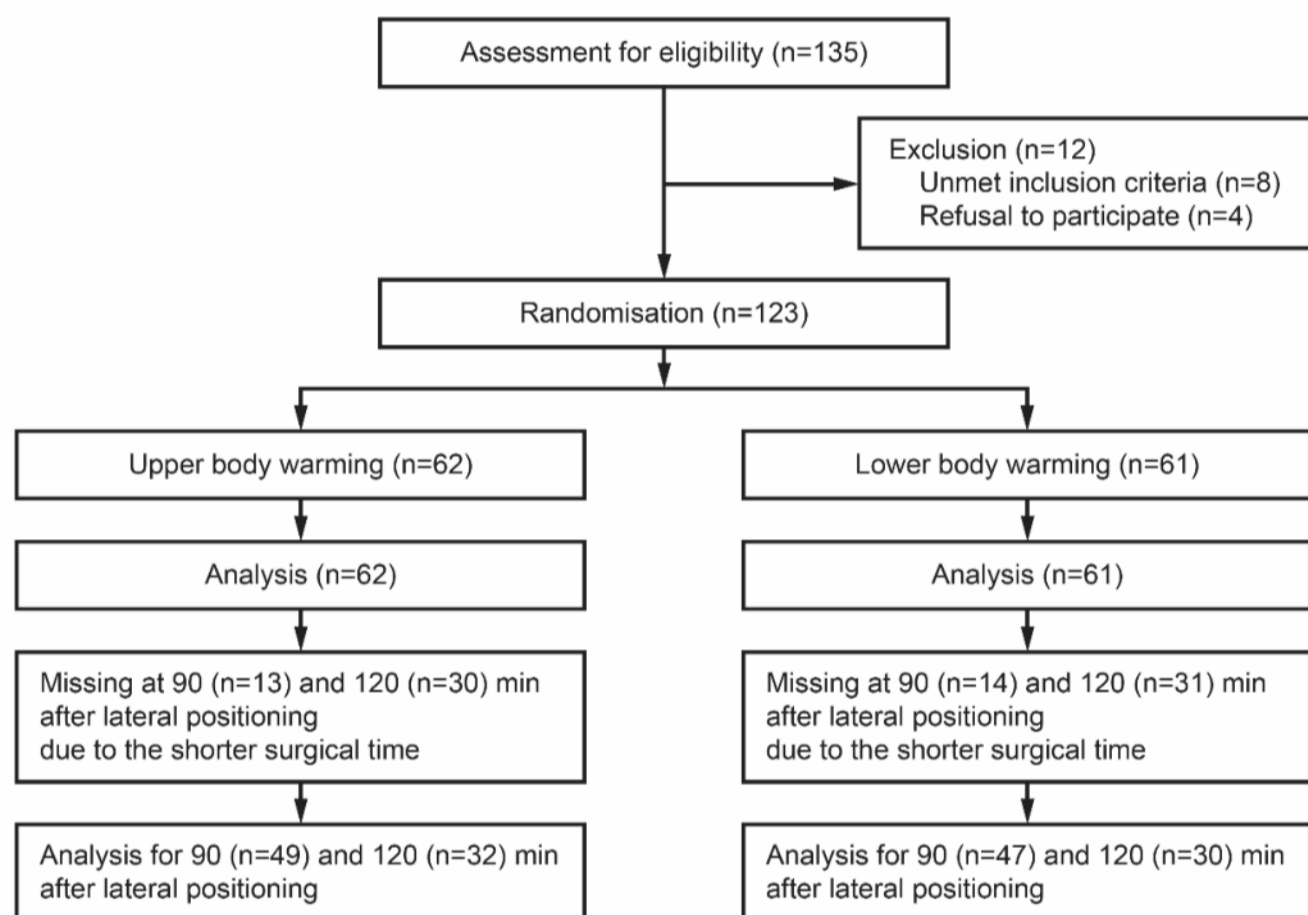
Background

- To prevent hypothermia during abdominal or thoracic surgery, forced-air warming can be applied to the upper or lower bodies not involved in the surgical area.
- In the supine position, lower body warming increases the core temperature more effectively than upper body warming since it covers a larger body surface area.
- However, it is unknown in the lateral decubitus position.

Methods

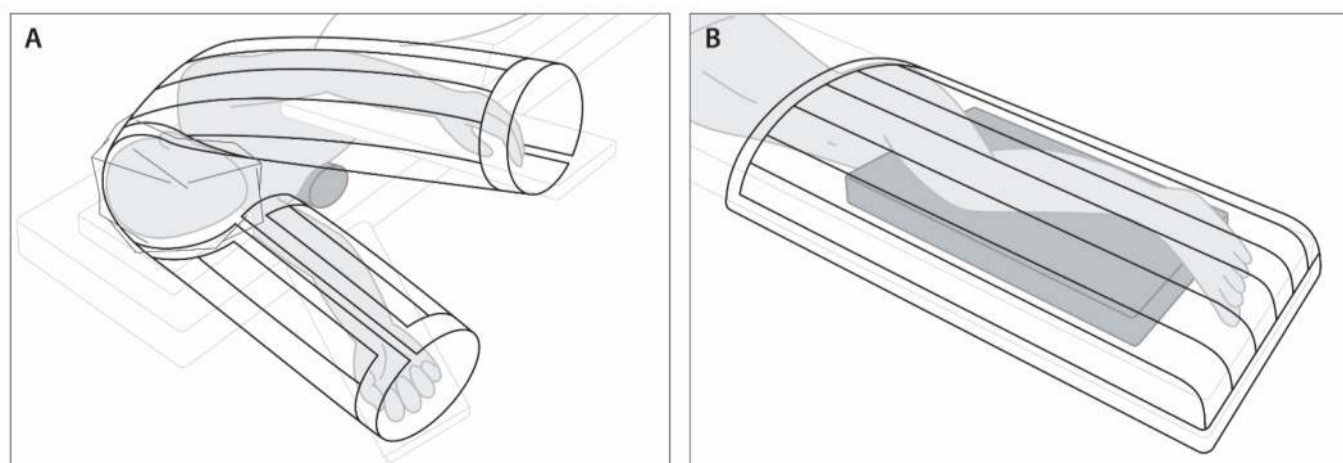
Subjects

Patients were randomised to receive forced-air warming on the upper body or lower body during thoracoscopic surgery in the lateral position.



Study Protocol

- The ambient temperature of the OR was $22 \pm 1^\circ\text{C}$, and a mattress was heated with circulating water set to 40°C .
- A disposable thermistor was positioned in the posterior upper nasopharynx.
- After lateral positioning, a disposable upper body blanket and lower body blanket was applied, and two forced-air blowers were connected to each blanket.
- One of two, according to assignment group, was set to temperature of 43°C for warming.
- Patients received both upper and lower body warmings when a temperature is below 35.5°C .

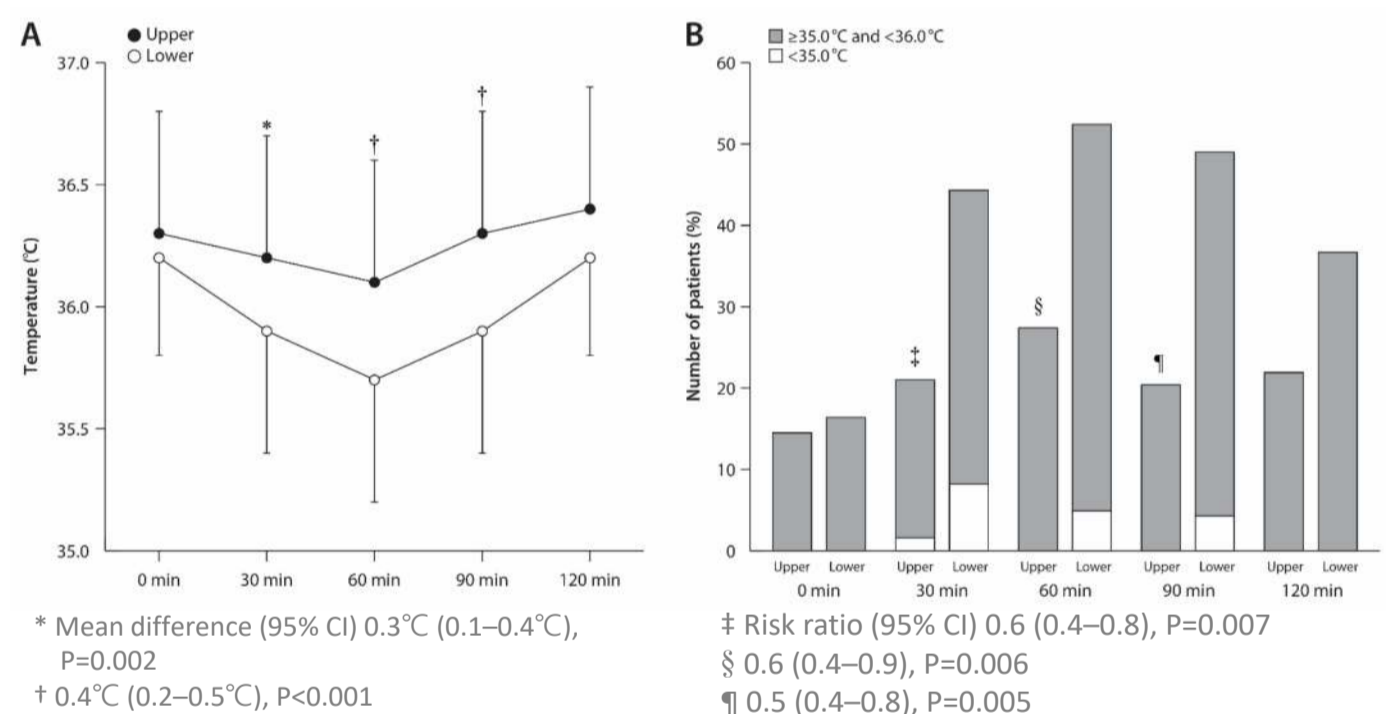


Outcomes

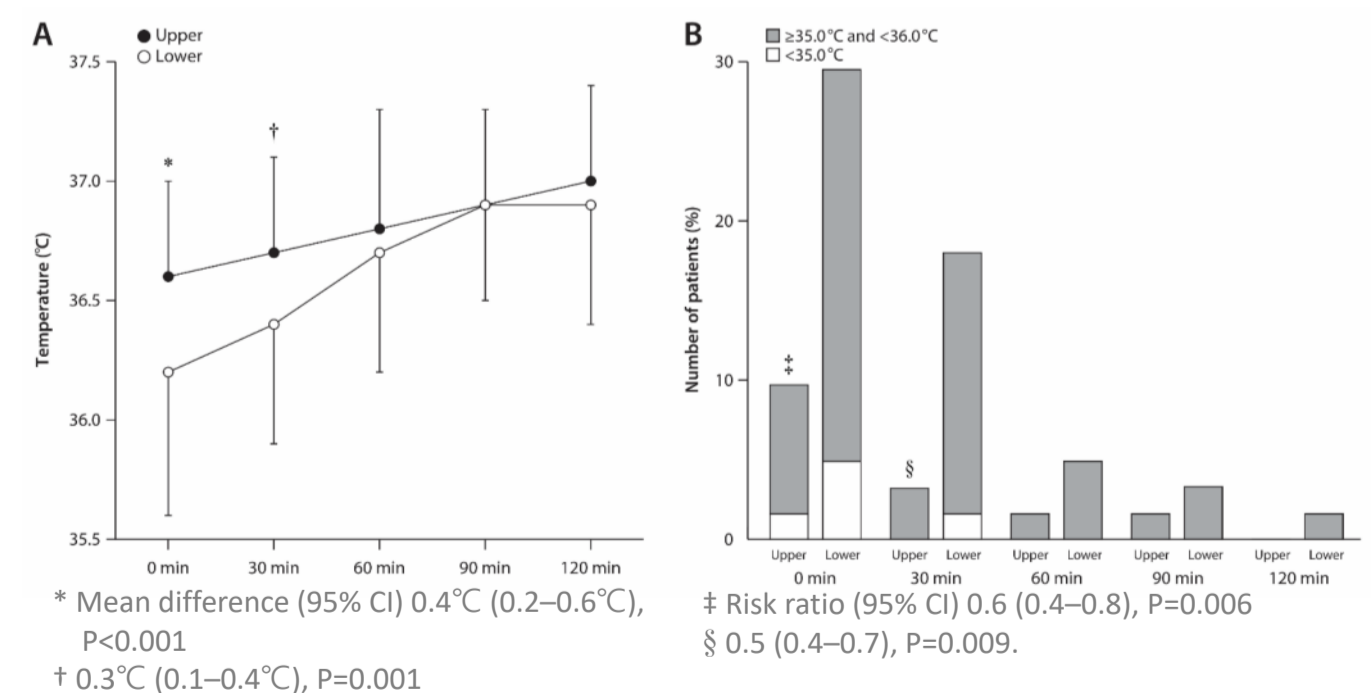
- The primary outcome was the incidence of intraoperative hypothermia with a temperature of $<36.0^\circ\text{C}$.
- During surgery, the nasopharyngeal temperatures were measured at 0, 30, 60, 90, and 120 min after lateral positioning, and the infrared tympanic membrane temperatures were measured at 0, 30, 60, 90 and 120 min after surgery.
- Postoperative shivering, thermal discomfort, and pain intensity were assessed.

Results

- The overall incidence of intraoperative hypothermia was lower with the upper body warming than with the lower body warming [21/62 vs 35/61, risk ratio (95% CI) 0.6 (0.4–0.9), $P=0.011$].
- Fewer patients received both upper and lower body warmings due to a temperature of $<35.5^\circ\text{C}$ in the upper body warming group [1/62 vs 7/61, $P=0.032$].
- The intraoperative temperature was higher with the upper body warming than with the lower-body warming at 30, 60, and 90 min after lateral positioning.



- The postoperative infrared tympanic membrane temperature was higher in the upper body warming group than in the lower body warming group at 0 min and 30 min after surgery.



- No differences were found in postoperative shivering, thermal discomfort, recovery time, adverse events, and pain intensity.

Conclusions

- Forced-air warming was more effective on the upper body than on the lower body to prevent hypothermia during thoracoscopic surgery in the lateral decubitus position.