

Evaluation of a modified thermo-wrap for the Allon warming system in patients undergoing elective off-pump coronary artery bypass grafting

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Background: The Allon warming system has proven to be efficient in maintaining normothermia during off-pump coronary artery bypass grafting (OPCABG)¹. However, the wrap used with this system is expensive, complications (i.e. burns) have been described² and handling is time consuming. The aim of this investigation was to evaluate the efficacy and the handling of a simplified and less expensive wrap.

Methods: With institutional approval and informed consent 40 consecutive patients undergoing elective OPCABG were randomly assigned to either the original (group A) or the modified wrap (group B). Active warming was started after induction of anaesthesia (setting the Allon system to 36.9°C body core temperature [BCT]). BCT was recorded every 30 min during surgery, maximal intraoperative BCT decrease/increase was calculated and reddening of the skin was assessed by visual analogue scale (VAS) at the end of the procedure. After the clinical evaluation 15 staff members involved in the handling of the Allon system were interviewed; answers were recorded using a Likert scale. Statistical analysis was done using student's t-test. $P < 0.05$ was considered significant; data are presented as mean \pm SD.

Results: 20 patients ASA III in each group (age: 68 ± 10 years, body mass index 28 ± 5) were studied. Duration of OPCABG was comparable (A: 257 ± 59 min, B: 269 ± 53 min; $p = 0.89$). There was no significant difference of BCT at the beginning and end of the intervention (BCT_{start}: A = $36.2 \pm 0.4^\circ\text{C}$, B = $36.1 \pm 0.2^\circ\text{C}$; $p = 0.43$ and BCT_{end}: A = $36.7 \pm 0.4^\circ\text{C}$; B = $36.8 \pm 0.3^\circ\text{C}$; $p = 0.17$). Intra-operative BCT changes were significantly different for A compared to B (BCT decrease/increase: A = $-0.7 \pm 0.4/+1.2 \pm 0.3^\circ\text{C}$, B = $-0.4 \pm 0.3/+1.0 \pm 0.3^\circ\text{C}$; $p < 0.005$). Skin changes were comparable for both groups (VAS: A = 6 ± 1 , B = 6 ± 1 ; $p = 0.78$). An improved positioning and a reduced time requirement for B compared to A was found by the interviewed staff in 73% and 80% respectively ($p < 0.005$).

Conclusion: In this series of patients undergoing OPCABG, modification of the Allon wrap showed improved intraoperative thermoregulatory capacity and simplified handling.

References:

- 1 *Anesthesiology* 2003; A-608.
- 2 *Anesthesiology* 2003; 98: 1509–10.