

Axillary and tympanic membrane temperature measurements are unreliable early after cardiopulmonary bypass

T. A. Khan, H. A. Vohra, S. Paul†, M. D. Rosin, R. L. Patel

European Journal of Anaesthesiology (2006): **23**; (7); 551-554

Background and objective: Inaccurate measurements of body temperature following cardiopulmonary bypass maybe associated with serious complications. The purpose of this study was to determine whether axillary and tympanic temperature measurements correlate with the urinary bladder temperature in the early postcardiac surgery period. *Methods:* Forty-nine adult patients who underwent cardiac surgery under cardiopulmonary bypass at our institution were prospectively studied. Urinary bladder, right axillary, right tympanic and left tympanic temperature measurements were simultaneously recorded at 0, 6, 12 and 18 h following cardiopulmonary bypass. Patients had one to four sets of recordings and a total of 629 temperature measurements were recorded. The mean difference(bias) between the bladder and each of the other methods and limits of agreement were calculated using Bland and Altman method. *Results:* The mean core body temperature recorded from the bladder on admission to the intensive care unit was 36.4°C. After 6, 12 and 18 h the mean core body temperature was 37.4°C (range: 35.2–39.0), 37.5°C and 37.45°C, respectively. The mean differences (bias) between the bladder temperature and the other three methods were: left tympanic, 0.65°C (95% CI: -0.24 to 1.58); right tympanic, 0.57°C (95% CI: -0.48 to 1.63) and right axillary, 0.55°C (95% CI: -0.27 to 1.36). *Conclusions:* The axilla and tympanic membrane are unreliable sites for core body temperature measurement early after cardiopulmonary bypass in adult patients and clinical decisions should be based on more reliable methods.