

Maintenance of Perioperative Normothermia Affects Immune Response Regulation during Off-Pump Coronary Artery Bypass (OPCAB) Surgery

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Background:

Perioperative hypothermia is associated with impaired immune function. We assessed the effects of maintaining normothermia on immune function during OPCAB surgery as assessed by Interleukin (IL) levels, in two medical centers.

Methods:

Sixty patients undergoing OPCAB surgery were randomized into two groups and warmed perioperatively with Allon thermoregulation (AT, n=40) or routine thermal care (RTC, n=20). AT used patients' rectal (core) temperature values to maintain water temperature in a circulating garment at 37°C. Patients temperature, cardiac Troponin I and interleukin (IL)-6, -8 and -10 levels were uninterruptedly assessed perioperatively.

Results:

IL levels were higher than baseline levels in both groups at the end of surgery ($P < 0.001$) and higher in the RTC group ($P = NS$). Both groups' cytokines levels correlated with the duration of the procedure. Cardiac troponin I (cTnI) levels were elevated during the entire perioperative period, suggesting some degree of myocardial damage: they correlated with IL-6 but not IL-8 or IL-10 values. There was no correlation between the levels of any investigated cytokine and CI or SVR.

Conclusions:

OPCAB surgery was associated with significant alternation of the immune regulation as expressed by different elevations of the investigated cytokines. The clear and significant correlation between IL-6 and cTnI suggests a direct damaging effect of IL-6 on the myocardium. Maintenance of normothermia throughout the entire perioperative period showed reduced levels of IL-6 and IL-10, suggesting enhanced immune response to stress.