

Aspartate-Aminotransferase (ASAT) as a Marker for Myocardial Injury after Cardiac Surgery.

Anders Jeppsson, Anna Sellgren, Folke Nilsson. Göteborg, Sweden

Background

The optimal biomarker for perioperative myocardial infarction remains controversial. Traditional markers like aspartate-aminotransferase (ASAT) and creatine kinase isoenzyme mb (CKMB), are often used for early screening but may be too unspecific for definitive diagnosis. More cardiac-specific markers such as Troponin-T (TnT) measured later after surgery has been suggested to improve the diagnosis. We investigated retrospectively the association between ASAT, TnT and clinical outcome in patients with suspected perioperative myocardial infarction.

Methods

ASAT was analysed the first postoperative day in 2910 patients undergoing first time cardiac surgery between Jan 2003 and June 2005. TnT was analysed three days after surgery in 188 patients with suspected perioperative myocardial infarction (ASAT ≥ 2.5 $\mu\text{kat/L}$). Permanent myocardial injury was defined as TnT ≥ 2.0 $\mu\text{g/L}$. The correlation between ASAT and TnT was calculated. 30-day mortality and cumulative mid-term survival were compared between patients with 1. ASAT < 2.5 $\mu\text{kat/L}$ (ASAT-), 2. ASAT ≥ 2.5 $\mu\text{kat/L}$ and TnT < 2.0 $\mu\text{g/L}$ (ASAT+/TnT-), and 3: ASAT ≥ 2.5 $\mu\text{kat/L}$ and TnT ≥ 2.0 $\mu\text{g/L}$ (ASAT+/TnT+). Mean follow-up was 17 months and 100% complete.

Results

There was a significant correlation between postoperative ASAT and TnT ($r = 0.33$, $p > 0.001$). However, only 54% (102/188) of the patients with ASAT ≥ 2.5 $\mu\text{kat/L}$ had TnT ≥ 2.0 $\mu\text{g/L}$.

30-day mortality was significantly higher in the ASAT+/TnT+ group (9.8%) than in the ASAT- group (0.8%) and the ASAT+/TnT- group (1.2%), $p < 0.001$ and $p = 0.012$ respectively. ASAT- and ASAT+/TnT- groups did not differ significantly ($p = 0.69$). Cumulative mid-term survival was inferior in the ASAT+/TnT+ group than in the two other groups (85 % at two years vs. 96% in the ASAT- and 96% in the ASAT+/TnT- group, $p < 0.001$ and $p = 0.017$, respectively. Again, the ASAT- and ASAT+/TnT- groups did not differ significantly ($p = 0.34$).

Conclusions

ASAT is a poor indicator for permanent myocardial injury after cardiac surgery and needs to be combined with more specific biomarkers. Increased postoperative ASAT in the absence of other markers for myocardial injury is not associated with worse clinical outcome than after normal postoperative ASAT.