

Cardiac troponin T release patterns after off-pump coronary bypass surgery

Niels Huyghe, Stefaan Bouchez, Annelies Moerman, Patrick Wouters, Stefan De Hert
Department of Anaesthesiology, Ghent University Hospital, Ghent, Belgium

Background

Cardiac troponin T (cTnT) is used as a specific marker for myocardial ischaemia, although its value remains ill-defined in off-pump coronary surgery (OPCAB). The present retrospective observational study aimed to determine the release patterns of cTnT after OPCAB and relate these to electrocardiographic changes.

Results

Three different postoperative cTnT levels could be identified:

- group 1 (6/74) showed an important increase of cTnT > 1 from which 3/6 patients developed a new Q-wave infarction
- group 2 (20/74) cTnT levels remained below 0.2

In group 3 ($0 < \text{cTnT} < 1$) three distinct patterns could be identified:

- pattern A (8/39) manifested as a gradual increase of cTnT levels during the first 48 hours
- pattern B (9/39) showed an early peak at arrival
- pattern C (22/39) demonstrated a peak value between 6-12 hours postoperatively

Interestingly, the incidence of electrocardiographic diagnosis of myocardial infarction was significantly higher in the groups showing a transient peaking pattern (pattern B and C) than in those who showed a progressive rise in postoperative troponins (pattern A) (12/31 vs 0/8; $p = 0.0471$).

Conclusion

Different magnitudes of cTnT release could be identified after OPCAB surgery.

In the patients with moderate cTnT release between 0 and 1 three different release patterns could be identified: gradual increase over 48 hours, a peak at arrival and those peaking between 6 and 12 hours.

Methods

- After ethical committee approval and informed consent, data from 131 OPCAB patients were retrieved from a database of which 57 patients were excluded for further analysis because of missing data
- cTnT samples were measured preoperatively, at arrival at the intensive care unit (ICU), and 6, 12, 24 and 48 hours afterwards
- 12-lead ECGs were recorded preoperatively, at arrival at ICU, 1, 2 and 5 days postoperatively

