

PRESENTATION 5

Troponin Measurement in Paediatric Cardiac Surgery: A Systematic Review

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Objectives

Troponin is a commonly used biomarker of myocardial injury following surgery. However, there are inconsistencies in the measurement and reporting of biomarkers due to a lack of standardised approach. This systematic review evaluates the use of troponin in paediatric cardiac surgery.

Methods

The MEDLINE, CENTRAL, EMBASE, and LILACS/IBECs databases were searched and relevant systematic reviews or meta-analyses were reviewed for additional studies. Inclusion criteria were the measurement and reporting of troponin in children undergoing cardiac surgery, with no restrictions on study design, year or language.

Results

125 studies were identified. The most frequent aim was risk factors/prognostic value for post-operative course (28, 22.4%) followed by cardioplegia (27, 21.6%). Cardiac troponin I was the most reported assay (93, 74.4%). 116 different time points for troponin measurement were identified: preoperative baseline was the most frequent (79, 63.2%) followed by 24-hour post-operative (43, 34.4%). Forty-nine (39.2%) studies only represented troponin values across time points graphically. 57 (45.6%) studies also reported other cardiac biomarkers, with CK-MB being most frequent in 32 (25.6%). The most frequent clinical variables compared were cardiopulmonary bypass time (95, 76%), aortic cross-clamp time (73.6%), and duration of inotropic support/inotropic score (68, 54.4%).

Conclusions

The current literature illustrates marked differences in how troponin is measured and reported in paediatric cardiac surgery. We found variations in assay, time points and clinical outcomes, alongside uncertainty regarding other cardiac biomarkers and lack of reporting of numerical troponin values. These inconsistencies precluded the pooling of results for meta-analysis and highlight the importance of a standardised approach to the measurement and reporting of troponin release following cardiac surgery in children.

