

#EA23: ESAIC Guidelines for Use of Cardiac Biomarkers in Perioperative Risk Evaluation



The ESAIC focused guidelines on cardiac biomarkers were presented at Euroanaesthesia 2023 in Glasgow this week.

There has been growing interest in utilising cardiac biomarkers in non-cardiac surgery patients. These biomarkers may be used with three separate aims. Firstly, they are used for prognosis, helping to determine how elevated levels of biomarkers affect the risk of specific outcomes. Secondly, they aid in risk prediction, providing insight into how much the biomarker contributes to differentiating patients at higher risk. Thirdly, biomarkers are used for biomarker-enhanced management, which involves implementing perioperative interventions in patients identified as being at risk by the biomarker(s).

The 2018 ESAIC guidelines on preoperative evaluation of adult patients undergoing elective non-cardiac surgery suggest considering the assessment of cardiac troponin (cTn) in high-risk patients both before and 48 to 72 hours after major surgery. The guidelines recommend measuring high-sensitivity cTn in patients at risk of coronary artery disease and those undergoing major surgery. It is also strongly recommended to measure B-type natriuretic peptide (B-type NP) in intermediate and high-risk patients undergoing vascular or major thoracic surgery and in high-risk patients undergoing major general or orthopaedic surgery.

The 2022 ESC guidelines on cardiovascular risk assessment and management of patients undergoing non-cardiac surgery provide strong recommendations for the awareness of perioperative myocardial injury. The guidelines emphasise the importance of surveillance using cTn to identify underlying pathophysiology and define appropriate treatment. The preoperative assessment algorithm includes a strong recommendation for preoperative cTn measurement and suggests considering preoperative B-type NP measurement in patients with cardiovascular risk factors or those over 65 years old undergoing intermediate or high-risk procedures. Surveillance with high-sensitivity cTn should be extended to 24 and 48 hours after surgery in this patient group. The guidelines suggest considering cardiac biomarkers before high-risk non-cardiac surgery for patients aged 45-65 years without signs, symptoms, or history of cardiovascular disease. Overall, the 2022 ESC recommendations on the routine use of cardiac biomarkers are stronger and applicable to a broader population than the 2018 ESAIC guidelines.

However, the ESA 2018 preoperative evaluation guidelines and the 2022 ESC guidelines on cardiovascular risk assessment and management do not consistently differentiate between cardiac biomarkers as prognostic factors and their use as risk prediction tools. This lack of differentiation and the varying recommendations provided by these guidelines create challenges for clinicians in understanding the precise utility of cardiac biomarkers.

The new ESAIC focused guideline for using cardiac biomarkers in perioperative risk evaluation offers updated recommendations regarding the pre-, post- and combined pre-and postoperative use of cardiac troponin and B-type natriuretic peptides in adult patients undergoing non-cardiac surgery.

The guidelines categorise the applications of cardiac biomarkers into three scopes: prognostic factors, risk prediction tools, and biomarker-enhanced management strategies. Twelve critical outcomes were identified for the guidelines - all-cause mortality up to 30 days after surgery, all-cause mortality up to 1 year after surgery, cardiac mortality up to 30 days after surgery, death or myocardial infarction up to 30 days after surgery, death or myocardial infarction up to 1 year after surgery, major adverse cardiac events up to 30 days after surgery, major adverse cardiac events up to 1 year after surgery, cardiac complications of any severity up to 30 days after surgery, myocardial injury up to 30 days after surgery, complications up to 30 days after surgery, short-term disability using predefined scale/scoring system and short-term Quality of Life.

Recommendations were provided based on the available evidence, and clinical practice statements were formulated in cases where limited evidence existed.

Detailed information on each specific recommendation can be found [here](#).

Source: [Euroanaesthesia 2023](#); [European Journal of Anaesthesiology](#).

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