

Reflections on ECG Preoperative Screening for Asymptomatic Low-Risk Individuals

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I read with interest the study by Ramos et al. on the “Prognostic Value of Preoperative Electrocardiogram in Low-Risk Patients Undergoing Surgical Intervention and General Anesthesia”.¹ The authors’ efforts to clarify the predictive efficacy of preoperative electrocardiography (ECG) in a population that appears to have a low-risk profile are meritorious. Nonetheless, I harbor concerns regarding the employed methodology, which may potentially impact the study’s findings.

Directly examining the hypothesis that an abnormal ECG can serve as a predictor of events is essential. This secondary analysis was incorporated by the authors within a subset of the population that underwent ECG. To robustly test their hypothesis, the primary analysis should have been whether an abnormal ECG is a predictor of increased risk compared to normal ECG findings. Implementing this methodology would yield a more precise assessment of the ECG’s ability to forecast postoperative complications.

Secondly, as a randomized and prospective study, adherence to established reporting guidelines such as CONSORT² or SPIRIT³ is imperative. These checklists advocate for a transparent methodological description concerning patient selection, randomization, allocation, and the definition of primary and secondary outcomes. The lack of such detail raises concerns about potential selection and indication biases.^{4,5} For instance, inadvertently selecting patients for electrocardiograms (ECGs) based on subjective preoperative

assessments that place them at a slightly higher risk profile could introduce both of these biases.

Furthermore, without predefined research power and a conventional alpha level, it is challenging to ascertain the required sample size for statistical significance. The lack of definitions for sample size analysis, beta, and alpha in this study restricts the capacity to formulate definitive conclusions. Moreover, clarity regarding the management of patients with abnormal ECG findings is crucial for the replication of results across different centers. This information serves to support the generalizability of the study’s results and would guide clinical practice.

Considering the aforementioned factors, I respectfully hold a differing opinion regarding the study’s conclusion that preoperative ECG does not contribute to the prognosis of postoperative complications in patients aged 50 and above who are undergoing general anesthetic surgery without any major medical conditions. From my perspective, the methodology utilized in the research fails to sufficiently substantiate this conclusion. A more appropriate approach would involve a prospective evaluation of patients with abnormal and normal ECGs, calculating differences in risk ratios. In contrast, a prospective randomized design could yield more conclusive results by randomly assigning patients presenting with abnormal electrocardiograms (ECGs) to either standard care or a predetermined, replicable ECG-guided therapy. Implementing such methodologies would enhance the ability to distinguish the influence of ECG results from additional confounding variables, thus providing a more accurate assessment of the ECG’s capacity to forecast postoperative outcomes.

The pursuit of enhancing patient care via evidence-based practices entails an ongoing commitment to education and progress. It is through scholarly discourse and meticulous research methodologies that we refine our clinical protocols to serve our patients better.

Keywords

Preoperative; Electrocardiogram.

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Reply

We thank the comments and questions raised by the author of the letter "Reflections on ECG Preoperative Screening for Asymptomatic Low-Risk Individuals". Although some of the questions were similar to those raised by the reviewers indicated by Arquivos Brasileiros de Cardiologia they help us and the readers to reflect on the best way to analyze and improve the value of preoperative electrocardiogram.

As described in the paper, our main interest was to investigate the value of performing a preoperative electrocardiogram, not the results of them. Our conclusion responded to this question based on the results observed and pointed out to reflect if the indication of a preoperative electrocardiogram should be based only on the age of the patient.¹

We performed a secondary analysis in the group that had an electrocardiogram performed. The subgroup with

electrocardiographic alterations did not have a significant difference in mortality and morbidity compared to the group with normal electrocardiograms. These findings, as based on secondary analysis and with a lower number of patients, were not part of the main conclusion of our study.¹

The randomization process was adequate; no preference to perform an electrocardiogram was made based on age complexity and duration of the surgical procedure. As pointed out in the paper we recognize many limitations of the study. The results did not have the power enough to change patient care according to guidelines but suggested that more studies should be performed in the field.² Multicentric studies including patients with different age groups, surgical risk, and complex surgeries will certainly bring more detail to the subject.

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