



Letter to the Editor / Editöre Mektup

COMMENT ON: "FRAGMENTED QRS PATTERN PREDICTS POOR PROGNOSIS IN SEPSIS AND SEPTIC SHOCK"

YORUM: "FRAGMENTE QRS PATERNİ SEPSİS VE SEPTİK ŞOKTA KÖTÜ PROGNOZU ÖNGÖRÜR"

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Dear Editor,

We are writing to express our views on the recently published article titled "Fragmented QRS Pattern Predicts Poor Prognosis in Sepsis and Septic Shock" by Karabacak et al.¹ We commend the authors for addressing an important and clinically relevant topic that explores the prognostic value of fragmented QRS (fQRS) patterns in patients with sepsis and septic shock. The study provides valuable insights into the association between fQRS patterns and short-term overall survival in critically ill patients. The authors' findings that fQRS patterns independently predict worse outcomes, alongside the need for mechanical ventilation and its duration, are particularly noteworthy. This observation could significantly influence the clinical management and risk stratification of septic patients. However, we would like to share some constructive comments and raise questions that may further refine the understanding of this important subject.¹

While the study provides valuable insights into the prognostic significance of fQRS patterns, the absence of echocardiographic data is a notable limitation. Echocardiography could have offered crucial insights into the structural and functional cardiac abnormalities associated with fQRS, such as myocardial scarring, ischemia, or reduced left ventricular ejection fraction. Including echocardiographic parameters would have strengthened the association between fQRS and myocardial dysfunction, providing a more comprehensive understanding of the underlying mechanisms. Furthermore, this data could have helped differentiate whether

the fQRS patterns observed were primarily reflective of sepsis-induced cardiomyopathy or pre-existing cardiac conditions, thereby refining the study's conclusions. Future research incorporating echocardiographic assessment alongside ECG findings would significantly enhance the robustness and clinical applicability of these findings.

The lack of a control group of patients without sepsis limits the study's ability to isolate the impact of sepsis on fragmented QRS (fQRS) patterns and their prognostic implications. Including a comparison group without sepsis but with similar cardiovascular risk factors, such as patients with stable chronic conditions, could have clarified whether fQRS patterns are specific markers of septic myocardial dysfunction or merely reflective of pre-existing cardiac abnormalities.² For example, fQRS patterns have been linked to myocardial scarring and ischemia in non-septic conditions like coronary artery disease and dilated cardiomyopathy.^{3,4} A comparative analysis might have revealed whether the observed fQRS patterns are amplified in septic states due to inflammatory and hemodynamic derangements unique to sepsis. This would also help differentiate sepsis-induced changes from baseline cardiac abnormalities present in critically ill patients. Future studies could benefit from stratifying participants into septic, non-septic critically ill, and healthy cohorts to establish the incremental predictive value of fQRS in sepsis. Such an approach would enhance the clinical utility of fQRS patterns as a specific marker for septic cardiomyopathy.

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The study by Karabacak et al. provides valuable insights into the relationship between fragmented QRS (fQRS) patterns and poor prognosis in sepsis and septic shock.¹ However, potential confounders, such as fluid resuscitation strategies and vasopressor timing, could have influenced the findings. Evidence suggests that liberal fluid administration, while ensuring hemodynamic stability, might increase the risk of complications like pulmonary edema.^{5,6} In contrast, restrictive fluid approaches may lead to suboptimal tissue perfusion.⁷ Similarly, early vasopressor initiation, particularly norepinephrine, is associated with better outcomes, including reduced mortality and shorter ICU stays.⁸

In the context of the study, the reported differences in outcomes based on mechanical ventilation duration and fQRS patterns might intersect with variations in these management strategies. For instance, patients in septic shock who received prolonged mechanical ventilation may have experienced higher mortality rates partially due to delays in optimal hemodynamic interventions. Standardizing fluid resuscitation and vasopressor initiation protocols could minimize these variations and strengthen the conclusions drawn from the fQRS prognostic analysis.^{9,10} Incorporating such considerations into future studies may help clarify the independent role of fQRS patterns in predicting outcomes while controlling for treatment-related variables. This approach would enhance the applicability of findings to clinical practice and further validate fQRS as a prognostic biomarker in sepsis management.

In conclusion, Karabacak et al.'s study suggests that fragmented QRS (fQRS) patterns may be a useful prognostic marker in sepsis and septic shock, correlating with worse short-term survival outcomes.¹ However, the lack of a control group, echocardiographic evaluation, and potential confounding factors limit the study's conclusions. Future research should address these gaps by incorporating control groups, extending follow-up periods, and accounting for confounders such as pre-existing cardiac conditions and medication effects. Including echocardiographic assessments and larger, multi-center cohorts would further strengthen the findings and validate the clinical utility of fQRS as a prognostic tool in sepsis management.

Keywords

Fragmented QRS, electrocardiography, sepsis, septic shock

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Conflict of Interest

The authors declared no potential conflict of interest.

Author contributions

AA, ÖTY: Concept, design, data collection and processing, literature review, analysis and interpretation, writing of the study.

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