Cardiology in the Young

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Letter to the Editor

Cite this article: Eren ME, Kum AS, Abilova G, Havan M, and Kendirli T (2026) Adrenaline and mortality in paediatric myocarditis: association, timing, and model stability. *Cardiology in the Young*, page 1. doi: 10.1017/S1047951126125049

Received: 29 September 2026 UTC
Revised: 29 September 2026 UTC
Accepted: 17 October 2026 UTC

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Adrenaline and mortality in paediatric myocarditis: association, timing, and model stability

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To the Editor

We read with great interest the report by Kocoglu Barlas and colleagues of 90 children with acute myocarditis, including 19 deaths, and an adjusted odds ratio of 8.43 (95% confidence interval 1.40–50.92) for adrenaline use.[1] Two clarifications would help interpret this exploratory mortality association.

First, the predictors are listed in Results and Table 4, but the statistical analysis section does not describe how the logistic model was specified or its predictors selected.[1] Table 4 includes nine binary predictors; if all 19 deaths entered the model, this represents approximately 2.1 deaths per coefficient. This ratio does not by itself invalidate logistic regression: a universal ten-events threshold is not supported.[2] Nevertheless, the limited information warrants scrutiny of estimate stability. The wide confidence interval demonstrates imprecision, not necessarily bias. Reporting the analysed sample size, predictor-selection process, and separation checks, together with a clinically justified reduced model and a penalised sensitivity analysis, would help assess the robustness of the adrenaline association.[2] Penalisation would not resolve confounding or unclear temporal definitions.

Second, the timing of the predictors needs clarification. A treatment can legitimately predict an outcome without causing it; including adrenaline is not inherently inappropriate.[3] Hypoxia, hypotension, and cardiogenic shock are described at admission, whereas the observation window for inotrope use and respiratory support in the mortality model is unspecified.[1] Does adrenaline use denote continuous vasoactive support, resuscitation doses, or both? If treatments initiated later during intensive care contributed to these variables, the analysis could not establish their value for prediction at admission.

The authors report that all non-survivors were monitored for at least 24 hours.[1] If treatment start times are available and early prognostic assessment is intended, one exploratory option would be a 24-hour landmark among children alive and still in intensive care, using only information available by then to assess subsequent death during the same stay. The eligible denominator and number of subsequent deaths should be reported. This would address a different question from risk at admission, not be a prerequisite for reporting exploratory associations.

Clarifying the analytical aim and testing these estimates would make the mortality findings more interpretable. For an exploratory prognostic-factor study, transparent model reporting and replication are appropriate next steps; development of an individual risk-prediction tool is a separate undertaking.[4]

Acknowledgements. ChatGPT (OpenAI; GPT-5.6 Sol, accessed in September 2026 via chatgpt.com) was used for language editing, structural review, and methodological critique during manuscript preparation. The authors reviewed and verified the final text and take full responsibility for its content.

Financial support. This research received no specific grant from any funding agency, commercial, or not-for-profit sectors.

Competing interests. None.

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