



## Letter to the Editor

## To trust or distrust myocardial performance index (MPI) in severe acute malnutrition



## Keywords:

Myocardial performance index  
Severe acute malnutrition  
Global longitudinal strain

We have read the article in detail of cardiac changes in children hospitalized with severe acute malnutrition by Jain et al.<sup>1</sup> Firstly, we want to congratulate the authors for addressing the cardiac changes in severe acute malnutrition. Child undernutrition accounts for 45% of under five mortality.<sup>2</sup> Myocardial dysfunction might be one of the associated cause of mortality. However, there are few points which need more clarification:-

1. Myocardial Performance Index (MPI/Tei Index) is a useful tool to measure the cardiac function. It was purposed by Tei<sup>3</sup> to measure the systolic and diastolic myocardial performance together. However, there are a few limitations of using MPI:-
  - A. Conventional Doppler-derived Myocardial Performance Index (PWD-MPI) has beat-to-beat-variation and to eliminate beat-to-beat variation bias, Tissue Doppler imaging (TDI-MPI) can be used. MPI is not a reliable parameter for assessment of isolated left ventricular diastolic dysfunction.<sup>4</sup>
  - B. The uniqueness of Tei index is its narrow range in individuals. However, author has taken 0.24–0.45 as a normal range (supplementary file). The normal range for adults is  $0.39 + 0.05$  as per Tei<sup>2</sup> and for children, it is  $0.36 + 0.07$  (PWD-MPI).<sup>5</sup>
  - C. Various studies published the conflicting correlation between MPI with malnutrition. Study by Brent et al<sup>6</sup> showed that the Tei Index values were within the reference range and similar in cases (median, 0.37; IQR, 0.26–0.45) and controls (median, 0.36; IQR, 0.28–0.42) at admission. Similarly, El Razaky et al<sup>7</sup> showed no substantial difference in MPI between moderately malnourished children and controls; however the study and patient population were different from current study.
  - D. Global Longitudinal Strain (GLS) is a more reproducible measure of left ventricular function. We should adopt strain imaging as a new gold standard for imaging ventricular function.<sup>8</sup>
2. In presence of sepsis/diarrhea/pneumonia, the results of cardiac biomarkers are spurious and have less specificity.<sup>9,10</sup> If this study had been in severe malnourished children without these comorbidities, it would have more clinical relevance.

## Declaration of competing interest

We have no conflict of interest.

## References

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