

Letter to the Editor

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Predictive value of pre-operative neutrophil–lymphocyte ratio for children undergoing congenital heart surgery

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We read with great interest the article from Iliopoulos et al,¹ describing the association between the higher preoperative neutrophil–lymphocyte ratio with worse post-operative outcomes in children after congenital heart surgery in 47 surgical patients with different types of CHD published online in this journal on 5 March, 2020. The main finding was that patients with higher preoperative neutrophil–lymphocyte ratio had almost three times more chance to develop moderate or severe low cardiac output syndrome during the first 12-hour post-operative period. The authors do not provide data on the pathogenesis of higher preoperative neutrophil–lymphocyte ratio and low cardiac output syndrome or other outcomes such as more extended ICU and hospital length of stay or mechanical ventilation time. Nevertheless, the authors state clearly: “This is the first study to document the prognostic significance of neutrophil–lymphocyte ratio in children after cardiac surgery.” Maybe the authors were not aware, but, in 2019, three different papers demonstrated the prognostic role of neutrophil–lymphocyte ratio in congenital heart surgery patients.^{2–4}

In July, Xu et al² retrospectively analysed post-operative neutrophil–lymphocyte ratio in 61 patients who underwent congenital heart surgery. They found an association between higher neutrophil–lymphocyte ratio and longer mechanical ventilation time and ICU length of stay.

In August, Savluk et al³ published an article reporting the association between preoperative neutrophil–lymphocyte ratio with mortality in 53 Norwood patients.

Finally, in November, we have published the article entitled “Prognostic Value of Preoperative Neutrophil-Lymphocyte Ratio For Patients Undergoing Glenn Procedure.”⁴ We found an association between higher preoperative neutrophil–lymphocyte ratio and longer mechanical ventilation time, ICU, and hospital length of stay in 141 univentricular patients, representing the most extensive retrospective series until now.

Based on this, we ask the authors to rephrase their statement and give the abovementioned studies the deserved references if they deem it appropriate.

We agree with the authors that the preoperative neutrophil–lymphocyte ratio is an available and inexpensive biomarker that can be used as another tool of risk stratification.

On the other hand, there remain many questions: 1) Is there a cut-off value? 2) What is the cause of elevated ratios? and 3) Can we modify this risk factor? In order to answer these and other questions, more and better-designed studies are necessary.

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Conflicts of Interest. None.

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