

# Letter to the editor for the article entitled "The importance and prognostic effect of thyroid hormones in patients with transposition of the great arteries"

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Dear Editor,

We read the article by Arslanoğlu et al. [1] entitled "The importance and prognostic effect of thyroid hormones in patients with transposition of the great arteries" with great interest. First of all, we congratulate the authors for their valuable contribution to the literature. We would like to point out some issues and ask some questions to the authors about the content of the article.

Serum thyroid hormone levels are known to be associated with the prognosis after pediatric heart surgery. Regular monitoring of thyroid hormone levels is of utmost importance especially in pediatric patients undergoing congenital heart surgery, since thyroid hormone levels are depressed in this patient group after the surgeries under cardiopulmonary bypass [2]. The authors presented their experiences on the arterial switch operations in cases with transposition of the great arteries and emphasized that regular monitoring of thyroid hormone levels and follow-up of thyroid function could improve the health status and prognosis of this patient group, as a conclusion of the study [1]. However, in their study population, serum thyroid hormone levels were studied only in the preoperative pe-

riod, and no knowledge exists of the postoperative course of thyroid hormone levels.

Extracorporeal membrane oxygenation (ECMO) ensures efficient cardiopulmonary support in cases of cardiopulmonary failure in pediatric patients undergoing congenital heart operations. In these patients, it is known that correct timing, appropriate management, and careful patient selection for ECMO are important issues for achieving satisfactory outcomes with ECMO support [3]. The authors indicated that the need for ECMO was decided by an intensive care team and all ECMOs were placed centrally. However, in their study population, no knowledge exists on how many cases received ECMO support, and its relationship with perioperative mortality.

We think that the most interesting finding of the study was that greater preoperative thyroid-stimulating hormone levels affected the severity of aortic regurgitation and mortality. However, no emphasis was placed on this situation in the conclusion section of the article. In our opinion, it would be better to emphasize the important findings of the study rather than the general information about the topic provided in

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this section of the article.

Finally, in the article, it was seen that the patients were not categorized as those who developed mortality (the mortality group) and those who did not (the surviving group), and thus since no such categorization and subsequent comparison was made between the two groups. However, the authors indicated that there was no significant relationship between mortality and several factors such as gender and postoperative degree of aortic regurgitation in the results section of the article. We would like to receive the authors' valuable opinions on this subject.

#### *Authors' Contribution*

Study Conception: MSA, A.M; Study Design: MSA, A.M; Supervision: MSA, A.M; Funding: N/A; Materials: N/A; Data Collection and/or Processing: N/A; Statistical Analysis and/or Data Interpretation: N/A; Literature Review: MSA, A.M; Manuscript Preparation: MSA and Critical Review: A.M.

### **Author's Response to Letter to the Editor**

#### *Dear Editor,*

We would like to express our gratitude for the valuable comments and constructive feedback regarding our article titled "*The Importance and Prognostic Effect of Thyroid Hormones in Patients with Transposition of the Great Arteries.*" We see this feedback as an opportunity to enhance the understanding of our study and to clarify certain points. Although the submitted critique's suitability as a "Letter to the Editor" may be questionable, below we have addressed each question in detail.

#### **1. Why were postoperative thyroid hormone levels not included in the study?**

The primary aim of our study was to evaluate the prognostic impact of preoperative thyroid hormone levels. Postoperative thyroid hormone dynamics were intentionally excluded from the scope of this study. However, the existing literature highlights significant changes in T3 levels during and after cardiopulmonary bypass (CPB) procedures, which can impact clinical

#### *Conflict of interest*

The authors disclosed no conflict of interest during the preparation or publication of this manuscript.

#### *Financing*

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outcomes. Indeed, some pediatric cardiovascular surgery centers routinely monitor and manage postoperative thyroid hormone levels. Considering this feedback, we acknowledge the importance of investigating postoperative thyroid hormone changes and their influence on clinical outcomes. A follow-up study exploring these dynamics in detail may be planned, which would provide a more comprehensive understanding of the role of thyroid hormones during the perioperative period.

#### **2. Why was detailed information about ECMO use and its relationship with mortality not included?**

In our study, only a small number of patients (n=3) required extracorporeal membrane oxygenation (ECMO) support. Consequently, conducting a statistically meaningful analysis of ECMO use in relation to mortality was not feasible. However, ECMO remains a critical treatment modality for high-risk patients undergoing congenital heart surgery. Decisions

regarding ECMO initiation in our cohort were made by a multidisciplinary intensive care team based on specific clinical indicators, such as left ventricular function, hemodynamic stability, and lactate clearance. While a more detailed evaluation of variables like ECMO timing, duration, and weaning success could yield valuable insights, incorporating such data into this study would have shifted its primary focus. Therefore, we chose not to include these variables. Future studies with larger sample sizes may explore the impact of ECMO on outcomes more comprehensively.

### **3. Why was the relationship between elevated preoperative TSH levels, aortic regurgitation, and mortality not emphasized in the conclusion?**

The relationship between elevated preoperative TSH levels, advanced aortic regurgitation, and mortality represents a significant finding of our study. However, this specific association may not have been sufficiently highlighted in the conclusion. This omission was a result of our attempt to present the general prognostic effects of thyroid hormones rather than emphasizing individual findings. We appreciate this feedback and agree that such key observations deserve greater emphasis. In future revisions or related publications, we will ensure that these findings are more explicitly discussed, particularly in the conclusion section.

### **4. How were relationships between mortality and other factors evaluated without categorizing patients into mortality groups?**

Although we did not explicitly divide patients into “mortality” and “surviving” groups, statistical analyses were performed on the entire cohort to assess the relationships between various preoperative and perioperative variables and mortality. Multivariate regression analyses were used to identify the independent

effects of factors such as gender, coronary artery anatomy, and postoperative aortic regurgitation on mortality. Our approach allowed us to evaluate mortality-related factors comprehensively. However, we acknowledge that stratifying patients into more distinct subgroups could provide additional clarity. This suggestion will be considered in the design of future studies.

### **5. Why did the conclusion focus on general information rather than highlighting the study’s specific findings?**

The conclusion was designed to contextualize the clinical importance of thyroid hormone regulation in congenital heart disease, particularly in transposition of the great arteries (TGA). However, we acknowledge that findings unique to our study, such as the association between preoperative TSH levels and adverse outcomes, could have been more prominently featured. While we view this as a matter of personal preference, future publications will aim to achieve a better balance between general insights and study-specific contributions. This approach will help researchers who are interested in our findings focus on these critical aspects more effectively.

## **CONCLUSION**

We are grateful for these thoughtful comments, which have allowed us to refine our interpretation of the study’s findings and identify avenues for future research. We hope that our responses adequately address the questions and concerns raised. We also thank the reviewers and editorial team for their contributions to the improvement of our work.

Yours sincerely,

**Ergin Arslanoğlu**