

Nonthyroidal illness syndrome in off-pump coronary artery bypass surgery

To the Editor,

We want to congratulate Caluk et al. (1) for their fluent and impressive article "Nonthyroidal illness syndrome in off-pump coronary artery bypass surgery" published in *Anatolian Journal of Cardiology* 2015; 15: 836-42. As they mentioned, many reasons such as surgical operations, acute and chronic systemic diseases, sepsis, and severe burns may result in nonthyroidal illness syndrome (NTIS).

Cardiopulmonary bypass (CPB) usage in the cardiac surgery produces widespread alterations not only in humoral, inflammatory, or metabolic functions but also in neuroendocrine levels. Some authors studied changes that may be influenced by the duration of bypass or CPB techniques such as contents of the priming solution, degree of hypothermia, or cardiac venting. However, the mechanisms of endocrine alterations resulting from bypass are still poorly understood. Nevertheless, we can argue that these changes may increase with longer durations of CPB or extracorporeal circulatory support.

In several studies, on-pump coronary artery bypass (ONCAB) and off-pump coronary artery bypass (OPCAB) techniques were compared, and they showed that the main difference between the two is inflammation arising from extracorporeal circulation (2). In the study of Caluk et al. (1), "the results show that NTIS occurs in a significant number of patients subjected to CABG and that there is no difference in the incidence of NTIS between patients operated on using the OPCAB and ONCAB technique." But they emphasized that "NTIS occurred in some two-thirds of patients, which is less than in the studies of other authors." Their presumption is age, which can potentially be associated with adverse outcomes. They had analyzed 50–70-year-old patients, while the other authors studied older ones (1). In the article of Velissaris et al. (3), they studied the effects of coronary bypass surgery upon thyroid function and compared ONCAB and OPCAB techniques, and found that there was no significant difference between two groups for the changes of thyroid function. They gave us aortic cross clamping (AXC) and CPB time (CPB time=62.6±23.7 min; AXC time=32.6±10.8 min). On the other hand, Caluk et al. did not give AXC and total CPB time but the number of anastomosis.

In fact, NTIS may be related to the severity of the patient condition (4), and even though CPB should not be considered as the sole trigger of NTIS in cardiac surgical patients (5), we should take into account the duration of CPB. Thus, we wonder if AXC or CPB times are shorter than those in the cases in the article of Velissaris et al. (3). If Caluk et al. (1) can share the data with us, we may understand well the results that lesser visible of NTIS in their study than other authors' results.

We are interested in your opinion regarding this matter.

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Accepted Date: 06.11.2015

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at www.anatoljcardiol.com
DOI:10.14744/AnatolJCardiol.2015.6787

Author's Reply

To the Editor,

We have read with interest the letter to the editor related to our article "Nonthyroidal illness syndrome in off-pump coronary artery bypass surgery" published in *Anatolian Journal of Cardiology* 2015; 15: 836-42 (1) and the questions within. We appreciate the authors' interest in our subject of investigation. They raise an interesting question about the effects of duration of cardiopulmonary bypass (CPB) and aortic cross-clamping time (AXC) during cardiac surgery on neuro-humoral mechanisms and, therefore, possibly on thyroid function as well. Of course, the longer the operation lasts, and the longer the CPB and AXC times are, the more we can expect these effects to become evident. In our study, we observed that the CPB time was 69.74±19.26 min and the AXC time was 46.59±12.07 min. We think that with a larger sample and a differently designed study, these effects might be observed and analyzed. It would be interesting to compare sub-groups of patients operated using on-pump coronary bypass surgery technique (ONCAB) regarding the duration of CPB and AXC, as well as sub-groups of patients of different ages, including older patients, and by all