THE ANATOLIAN JOURNAL OF CARDIOLOGY

Official journal of the TURKISH SOCIETY OF CARDIOLOGY

# Revisiting and Refining the Body Mass Index-Based Thromboembolic Risk Score in Atrial Fibrillation: A Constructive Review

LETTER TO THE EDITOR

To the Editor,

We read the article entitled "A novel body mass index-based thromboembolic risk score for overweight patients with non-valvular atrial fibrillation" published in *Anatolian Journal of Cardiology* with great interest.[1] We appreciate the authors for contributing to the literature where there is a significant gap about this subject. Although $CHADS_2$ and $CHA_2DS_2VASc$ scores have been used for a long time for predicting the thromboembolic risk in nonvalvular atrial fibrillation patients, it is an inevitable need that cannot be ignored to test a new score for specific patient groups. To date, there is not any randomized controlled trial constructing and validating a new score for overweight patients.

Logistic regression (LR) analysis is one of the basic methods for generating a new model and finding the best predictors of a dependent variable like death or a clinically important event. Univariate LR analysis tests the variables separately first and then clinically or statistically significant (at least $P < .10$) variables are added to the multivariate analysis to be able to form the last version of the model. While doing this procedure, some critical steps should be kept in mind for objective results. First, it is important that there should not be collinearity between the variables. Second, adding nonsignificant variables ($P > .10$) to the model may lead to misinterpreting of the results.

The authors have chosen 7 variables [age, body mass index (BMI), platelet (PLT) level, estimated glomerular filtration rate, left ventricular ejection fraction (LVEF), history of stroke, and heart failure (HF)] while conducting the final model. In here, there may be a conflicting issue about collinearity. Ejection fraction (EF) and HF history are associated variables. It should be tested the multicollinearity between HF history and EF before adding to the model. If there is not any relationship between these 2 parameters, they may separately be added to the model. It would be better for authors to explain this issue within the methods or statistical analysis section.

The second issue is about the formation of the $AB_2S$ score. They assigned 2 points for BMI ≥35 kg/m$^2$ and history of stroke, and 1 point for age ≥75 years, BMI from 30 to 34 kg/m$^2$, eGFR <60 mL/min per 1.73 m$^2$, PLT count < 125 × 109/L, LVEF <40%, and history of heart failure. In the formation of the model, BMI ≥35 kg/m$^2$ and history of stroke were assigned with 2 points. So, it would be better to rename the model as $AB_2S_2$ because assigning the numbers according to the assigned letters may make the model easier to understand.

With these humble recommendations, we congratulate the authors for their efforts for trying to fill the gap in the literature.

Editor's note: Despite our repeated emails, we received no response from the authors.

## REFERENCE

1. Yu M, Li X, Zong L, Wang Z, Lv Q. A novel body mass index-based thromboembolic risk score for overweight patients with nonvalvular atrial fibrillation. *Anatol J Cardiol*. 2024;28(1):35-43. [CrossRef]



**Yunus Emre Yavuz**[1]
**Fatih Kahraman**[2]

[1]*Department of Cardiology, Siirt Training and Research Hospital, Siirt, Türkiye*
[2]*Department of Cardiology, Kütahya Evliya Çelebi Training and Research Hospital, Kütahya, Türkiye*

**Corresponding author:**
Yunus Emre Yavuz
✉ yemre91@icloud.com

**Cite this article as:** Yavuz YE, Kahraman F. Revisiting and refining the body mass index-based thromboembolic risk score in atrial fibrillation: A constructive review. *Anatol J Cardiol*. 2024;28(6):316.

DOI:10.14744/AnatolJCardiol.2024.4329