

# What Remains at the Bottom of the PANDORA's Box?

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We read with great interest the research article by Bansal et al showcasing the major adverse cardiac and cerebral events (MACCE) predictive value of a novel preoperative combined adiposity-nutritional index (CANI, or visceral adiposity index [VAI]/prognostic nutritional index [PNI]) in patients undergoing off-pump coronary artery bypass grafting (OPCABG).<sup>1</sup> As a matter of fact, the idea of an objective account of the metabolic–nutritional profile of coronary artery disease (CAD) patients coming for surgical revascularization is commendable. We concur that this study opens up a PANDORA's box of the understated prognostic potential of preoperative metabolic–nutritional evaluation.<sup>1</sup> Nevertheless, we infer that a clarification on certain points would potentially assist the readers of the *Journal* understand the research findings better.

- i. While the authors seek congruence between the 10.93% incidence of 30-day MACCE in their study and the Kaplan–Meier MACCE-predictive event curves of the much longer 5-year follow-up SYnergy between percutaneous coronary intervention with TAXus and cardiac surgery (SYNTAX) trial,<sup>1,2</sup> it remains unclear whether/or not a percentage of their OPCABG patients were subjected to a concomitant carotid endarterectomy (CEA) for carotid artery stenosis (CAS). Understandably, CAS may co-exist with CAD, wherein a simultaneous CEA would only enhance the eventual risk of postoperative MACCE.<sup>3</sup>
- ii. Ahead of the fact that the syndrome X patients (28.9% overall incidence, with 22.7% in the non-MACCE and 79.5% in MACCE groups) demonstrate a considerable 43% increase in the mean CANI values as opposed to

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the non-syndrome X patients in the Bansal et al's study,<sup>1</sup> it would have been equally interesting to witness a comparison of the mean CANI values of the syndrome X patients who landed up with postoperative MACCE and those who did not.

- iii. With standing the fact that advanced age emerged as an independent MACCE predictor in the authors' analysis,<sup>1</sup> it would be worth to call attention to the increasing research interest in the prognostic implications of computing the geriatric nutritional risk index (GNRI), particularly when Bansal et al employed PNI across all the included age groups to compute the corresponding CANI values.<sup>4</sup>
- iv. Lastly, we appreciate the authors' proposition of employing CANI as a performance metric for cardiac pre-habilitation programs, which is quite progressive and relevant to the modern-day context of enhanced recovery after cardiac surgery (ERACS).<sup>1,5</sup>

#### Conflict of Interest

None declared.

#### References

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## Hope Remains at the Bottom of the PANDORA's Box!

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We thank Mahajan and Suresh et al for showing their interest in reading our article and would wish to respond to the points raised by them regarding our research endeavor through correspondence.<sup>1,2</sup>

They seem to be concerned about the fact whether a percentage of our study participants underwent a concomitant carotid endarterectomy in conjunction with off-pump coronary artery bypass grafting (OPCABG).<sup>1</sup> While the former concern is apposite in a study evaluating major adverse cardiac and cerebral events (MACCE) as a primary outcome, we clarify that the 10.93% incidence of 30-day MACCE transpired in an exclusive OPCABG setting in our study. With that said, our study categorically outlined carotid artery stenosis as a univariate predictor of postoperative MACCE (odds ratio: 2.407; 95% confidence interval: 1.659–3.490; *p*-value <0.001) in the regression analysis.<sup>1,2</sup> Speaking from a generalized research perspective also, MACCE as an outcome needs to be studied for much longer postoperative durations to discern the risk-patterns of different surgical approaches (staged-simultaneous-isolated CABG) to tackle a coexistent coronary and carotid artery disease, as highlighted by Güney et al in a decade-long follow-up of the aforementioned patient cohort.<sup>3</sup>

As for the potential research ramifications of the syndrome X subset in our study, we would bring to light a substantially higher, i.e., 79.5% incidence of syndrome X patients in the MACCE-group as opposed to only 22.7% incidence in the non-MACCE group.<sup>1,2</sup> With regards to Mahajan and Suresh et al interest in the comparison of CANI values within the MACCE group, a post-hoc analysis revealed that the mean CANI values were 38.71% higher in the syndrome-X cohort compared with the non-syndrome X

patients landing up with the index complication (0.086 vs. 0.062, respectively). Herein, the relevance of a CANI  $\geq 0.075$  emerging as a MACCE-predictive cut-off in our study, can certainly not be overemphasized.<sup>2</sup>

At the same time, it additionally remains to be understood that the computation of novel risk-predictive scores and indices is limited by the availability of patient-related data in any retrospective analysis.<sup>4</sup> Nonetheless, we again thank Mahajan and Suresh et al for an insightful discussion on the subject.<sup>1</sup> More importantly, we wish to allay their concerns by expressing our belief that hope remains at the bottom of the PANDORA's box, a hope that preoperative metabolic-nutritional evaluation would receive the requisite research attention in the times to come...

**Conflict of Interest**  
None declared.

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- 1 Mahajan S, Suresh V. What remains at the bottom of PANDORA's box?
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