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Obstructive sleep apnea and cardiovascular disease: Is mean platelet volume one of the links?

To the Editor,

We read with great interest the excellent review entitled "Obstructive sleep apnea and its effects on cardiovascular diseases: a narrative review" by Rivas et al. (1) on the cardiovascular comorbidities of patients with obstructive sleep apnea (OSA) published. Indeed, it is increasingly being appreciated that patients with OSA are at a higher risk of coronary artery disease, congestive heart failure, stroke, and atrial fibrillation. Treatment with continuous positive airway pressure (CPAP) reduces these comorbidities (1).

A novel important, though less widely used, marker of the severity of OSA is mean platelet volume (MPV), as shown by Varol et al. (2, 3) and us (4). Again, CPAP treatment has been reported to reduce MPV (3). Given its role as a marker of vascular disease and a predictor of acute vascular events (5), it appears that MPV also links OSA with cardiovascular disease. Specifically, in patients with OSA, MPV is also associated with atrial fibrillation (5).

In conclusion, it is now established that OSA poses patients at an increased risk of cardiovascular disease (1). MPV may prove useful as a marker of the latter in patients with OSA (4, 5); therefore, it should be more widely utilized for this purpose.

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Author`s Reply

To the Editor,

We appreciate Dr. Nena's comments about our review article entitled "Obstructive sleep apnea and its effects on cardiovascular diseases: a narrative review," published in Anatol J Cardiol 2015; 15: 944-50, and her suggestion that mean platelet volume (MPV) may have prognostic importance as a risk factor for cardiovascular events and therapeutic importance as an indicator of a response to CPAP management in patients with obstructive sleep apnea (OSA) (1). MPV is a marker for thrombocyte activation. Larger platelets contain more granules and thromboxane A_2 and express more glycoprotein receptors. Therefore, these platelets aggregate more quickly and adhere more strongly to collagen, and this potentially leads to either an increased frequency or severity of thromboembolic events. Because patients with OSA have an increased frequency of atrial fibrillation and stroke and because OSA has adverse effects on outcomes in patients with other cardiovascular disorders, measuring MPV may help classify patients into risk categories and identify patients who might need additional therapy.

One important issue in studies using MPV as an indicator of vascular events is whether to consider MPV as a continuous variable or as a categorical variable, which is of interest only if it is above the upper limit of normal or some other critical value based on outcome studies. Another important issue is the study population. Is it more important to study patients with underlying risk factors for cardiovascular disease or to study patients without any obvious evidence of cardiovascular disease? Karakaş et al. (2) analyzed MPV in controls and in patients with OSA with mild, moderate, and severe increases in apnea-hypopnea index (AHI). They found that it was significantly higher in patients with severe OSA than in control subjects. However, the reported values appeared to be within the normal range, and absolute differences were small (8.6 versus 7.8 femtoliters). They did find significant correlations