

Letters to the Editor

Heart rate variability, obesity, and bariatric-induced weight loss: the importance of selection criteria

To the Editor:

Heart rate variability (HRV) is a noninvasive electrocardiographic marker reflecting the activity of the sympathetic and vagal components of the autonomic nervous system on sinus node function. It expresses the total amount of variations of instantaneous heart rate [1]. Thus, HRV analyzes the tonic baseline autonomic function. A predominance of sympathetic tone in cardiac activity induces tachycardia and reduces beat-to-beat variations, whereas parasympathetic nerve activity reduces heart rate and increases HRV. Spectral analysis of HRV has been used to explore dynamic mechanisms in the cardiovascular system and appears to provide a quantitative evaluation of the sympathovagal interaction that modulates cardiovascular function [2]. According to previous studies, the cardiac autonomic nervous system plays an important role in the pathophysiology of obesity and related complications [3,4]; and diet-induced weight loss is associated with significant improvement in autonomic cardiac modulation through enhancement of parasympathetic modulation. There were no data in the literature about the influence of surgically induced weight loss on autonomic cardiac system in severely obese patients.

In a recent issue of *Metabolism*, we read with interest the report of Nault and colleagues [5] about the impact of bariatric surgery-induced weight loss on HRV. The study showed that the bariatric surgery-induced weight loss enhanced HRV and decreased mean and minimal heart rate during Holter monitoring in a group of obese patients. We suggest that the number of evaluated patients was too small to determine the statistical significance and to draw general conclusions on improved on HRV after surgically induced weight loss. The authors did not underline the exclusion criteria of the study population. The presence of diabetes, uncontrolled hypertension, documented cardiovascular disease, smoking, narcolepsy, sleep apnea requiring continuous positive airway pressure therapy, obesity hypoventilation syndrome, chronic respiratory disease, thyroid disease, or some medications (ie, sex steroid hormones, antidepressants,

appetite suppressants, converting enzyme inhibition, β -blockers, L-thyroxine) may influence the autonomic nervous system and could have induced bias in the results. Six women were enrolled in the treatment arm of the study, but no information about the fertility state was shown. In a recent study, Monda et al [6] analyzed vegetative modulation, expressed as HRV power spectral analysis, in lean and obese women at premenopausal or postmenopausal age to reveal possible differences in menopause-related autonomic activity in lean and obese subjects. They reported that modifications of autonomic modulation can be included among factors related to obesity in premenopausal, but not postmenopausal, women. In conclusion, according to the authors, we suggest longer studies with well-selected severely obese patients.

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