Biomarkers of cardiovascular stress in obstructive sleep apnea

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Obstructive sleep apnea (OSA) is a common sleep-related breathing disorder associated with "cardiovascular stress", i.e. cardiovascular risk factors, cardiovascular diseases, and an increased risk of heart failure, stroke, and death. Experimental and clinical studies have characterized potential underlying mechanisms including biventricular dysfunction, atherosclerosis, and arrhythmia. Assessment of these cardiovascular features of OSA requires a spectrum of clinical tools including ECG, echocardiography, exercise testing, and angiography. In contrast to many cardiovascular diseases, the role of blood biomarkers to characterize cardiovascular function and cardiovascular risk in OSA is poorly defined. In the present review we summarize the available data on biomarkers potentially providing information on cardiovascular features in OSA patients without overt cardiovascular disease. The vast majority of studies on biomarkers of cardiovascular stress in OSA evaluated B-type natriuretic peptide (BNP)/N-terminal-B-type natriuretic peptide (NT-proBNP), and cardiac troponins (cTn). Although some studies found significant associations between these cardiac biomarkers and the presence and severity of OSA, data remain conflicting. Also, the detailed pathophysiological mechanisms underlying the link between OSA and hemodynamic cardiac stress (BNP/NT-proBNP) and cardiomyocyte damage (cTn) are poorly understood. Major research efforts are required to establish the clinical role of cardiovascular biomarkers in patients with OSA.