



# A New Prognostic-Predictor Marker of Cardiovascular Disease for Obstructive Sleep Apnea: Pentraxin 3

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Obstructive sleep apnea syndrome (OSAS) is characterized by intermittent complete or partial upper airway obstruction during sleep causing hypoxia, sleep disruption, daytime sleepiness, mental and physical effects is the second most common respiratory condition; affecting 0.3- 4% of the middle- aged population (1). OSAS is strongly associated with cardiovascular morbidity and mortality, including an increased risk of endothelial dysfunction and atherosclerosis (2). The increased prevalence of hypertension and atherogenesis among OSAS patients has been attributed to sympathetic activation and endothelial dysfunction, likely resulting from initiation and propagation of inflammatory responses within the microvasculature (3). There is increasing evidence that OSAS associated with inflammatory cytokines and markers such as C-reactive protein (CRP), interleukin-6, fibrinogen, tumor necrosis factor alpha which are closely-involved in atherosclerosis, plaque formation and rupture (4). OSAS, a potent activator of inflammation, increases CRP which has been used as an inflammatory biomarker for prediction of cardiovascular events;CRP is named as classical short pentraxins and is a acute phase protein produced from the liver in response to inflammatory mediators (5). Pentraxin 3 (PTX3), a new defined member of the pentraxin family, is produced from the major cell types involved in atherosclerotic lesions, including vascular endothelial-smooth muscle cells, macrophages, and neutrophils in response to inflammatory stimuli, however CRP is produced only from liver (6,7). Furthermore, CRP represents a systemic response to local inflammation, whereas PTX3 is rapidly produced directly from damaged tissues and directly reflects only the inflammatory state of the vasculature. The last but not the least PTX3 levels have been reported to be significantly elevated in acute myocardial infarction (7). In the light of these knowledge, PTX3 is able to reflect ACS condition better than CRP, it is highly possible that PTX3 is a superior biomarker to predict future cardiovascular events. Therefore, we speculate that OSAS, directly or indirectly, induces a persisting systemic and vascular inflammation and may cause PTX3 secretion.

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Since high PTX3 level is a sign of vascular inflammation which is the trigger point for many diseases that may occur secondary to OSAS, might also be a good marker of cardiovascular disease in OSAS. Screening of PTX3 level in OSAS patients may be a useful marker for evaluating the prognosis of OSAS. To address this hypothesis, further prospective studies are warranted to evaluate the role of PTX3 in patients with OSAS.

**Key words:** *pentraxin 3, cardiovascular disease, obstructive sleep apnea syndrome*

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