

Endocan and Erectile Dysfunction

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Abstract

Endothelial dysfunction (ED) occurs early in the development of atherosclerosis. Predictors of vascular risk including obesity, hyperlipidemia, metabolic syndrome, diabetes mellitus, and hypertension are associated with both vascular endothelial and ED. Endocan is a novel marker of endothelial dysfunction, inflammation, and atherosclerosis. Raised endocan levels (usually measured by ELISA assays) were reported in some cardiovascular diseases and related conditions. Increased endocan levels may represent the endothelial and inflammatory components of the pathogenesis of ED and may, therefore, prove useful in clinical practice.

Keywords

Inflammation, endothelial dysfunction, sexuality

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Predictors of vascular risk including obesity, hyperlipidemia, metabolic syndrome, diabetes mellitus, and hypertension are associated with the presence of erectile dysfunction (ED) and vascular endothelial dysfunction (Elzanaty et al., 2016). Endothelial injury, inflammation, and dysfunction play a role in the pathogenesis of ED (Zhao et al., 2018).

Endocan is a novel immunoinflammatory marker (Balta et al., 2015) and elevated levels were reported in some endothelial dysfunction-related diseases (Balta et al., 2013, 2014; Celik et al., 2014; Icli et al., 2015).

There is evidence of an association between several inflammatory diseases and endocan (Balta et al., 2015). In this context, endocan was a strong predictor of overall and cardiovascular mortality in patients with inflammatory conditions (Yilmaz et al., 2014). In agreement with previous studies, patients with Behçet's disease had significantly higher serum levels of endocan (Balta et al., 2014). Serum endocan levels correlated positively with established inflammatory markers (e.g., C-reactive protein (CRP), erythrocyte sedimentation rate, and disease activity) in these patients (Balta et al., 2014). Similarly, Balta et al. (2013) showed that endocan levels were higher in patients with psoriasis vulgaris compared with controls; again, there was a correlation with indices of inflammation (e.g., CRP and Psoriasis Area and Severity Index).

Demirkol et al. (2014) investigated the relation between cardiac syndrome X (CSX; a condition where coronary endothelial dysfunction can cause angina pectoris) and ED. They compared CSX patients and controls using the International Index of Erectile Function Questionnaire (IIEF)-5. They showed that the IIEF-5 scores in the CSX group were significantly lower than those of control group (Demirkol et al., 2014). In addition, previous studies showed that increased levels of some biomarkers can reflect inflammation, angiogenesis, coagulation, tumor invasion, and degenerative changes in vascular endothelial cells (Balta et al., 2015). In this context, CRP, a well-established inflammatory biomarker is strongly, independently associated with the ED (Li et al., 2019). Onuk et al. (2018) classified the ED patients (as severe, moderate, or mild) using the Sexual Health Inventory for Men (SHIM) questionnaire. They reported a significant difference in serum endocan levels between the severe ED and the control group. Also, a significant negative correlation between the SHIM score and

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endocan levels was observed. This study defined the presence of an association between plasma endocan levels and ED.

Elkamshoushi et al. (2018) investigated the relation between ED and endocan levels. ED (defined by the IIEF-5 score) negatively correlated with endocan levels. These authors proposed that endocan levels can correlate with the severity of ED.

Karabakan et al. (2017) compared ED patients and controls by using the IIEF-5 score. They reported higher endocan levels in ED patients compared with controls. Also, endocan levels correlated with the severity of ED (Karabakan et al., 2017).

Significant differences between control and ED groups in terms of the serum endocan levels may prove useful in the evaluation of endothelial dysfunction in these patients. Atherosclerosis and ED share similar risk factors/predictors (Katsiki et al., 2015). It is therefore expected that these two conditions share other markers (e.g., endocan).

In conclusion, increased endocan levels may represent the endothelial and inflammatory components of the pathogenesis of ED. Endocan may prove to be useful as a novel diagnostic marker for the severity of ED. Further studies are needed to evaluate these associations.

Declaration of Conflicting Interests

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