OSTEOPROTOGERIN AND OSTEOPONTIN SERUM LEVELS ARE ASSOCIATED WITH ENDOTHELIAL FUNCTION AND ARTERIAL STIFFNESS IN CORONARY ARTERY DISEASE

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Background: Osteoprotogerin (OPG) and osteopontin (OPN) have recently emerged as key factor in both vascular remodeling and development of atherosclerosis. Endothelial function and arterial stiffness are significant factors of clinical evaluation in patients with coronary artery disease (CAD). The study was designed to evaluate the relation between serum concentration of OPG, OPN and arterial function in CAD.

Methods: We enrolled 280 patients with CAD (mean aged 61±11 years), and 129 control subjects (mean aged 60±12 years). Serum OPG and OPN levels were measured, using ELISA. Endothelial function was evaluated by flow mediated dilation (FMD) in the brachial artery and carotid-femoral pulse wave velocity (PWV) was measured as an index of aortic stiffness.

Results: There was no difference between control subjects and CAD patients according to age (p=0.48) and sex (p=0.07). CAD patients had significantly impaired FMD (4.75±2.22 % vs. 6.50±3.13 %, p<0.001) and increased PWV (8.94±2.21 m/sec vs. 8.28±1.91 m/sec, p=0.006) compared to control subjects. CAD patients had also significantly higher levels of OPG (3.91±2.87 pmol/L vs. 2.88±2.17 pmol/L, p<0.001) and logOPN (1.81±0.18 ng/ml vs. 1.71±0.24 ng/ml, p<0.001) compared to control subjects. More importantly, PWV were positively associated with serum OPG levels (r=0.19, p<0.01) and with serum logOPN levels (r=0.10, p=0.049) and FMD was negatively associated with OPG levels (r=-0.126, p=0.048).

Conclusion: Our findings indicate that CAD patients had increased OPG and logOPN levels. Moreover, there is a consistent association between endothelial dysfunction and impaired arterial stiffness with serum levels of OPG and OPN in CAD patients. These findings suggest that OPG and OPN significantly affect vascular function and this may have important implication in the pathogenesis of CAD.