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SERUM OSTEOPROTEGERIN LEVELS PREDICT CARDIOVASCULAR RISK IN HYPERTENSIVE AND DIABETIC PATIENTS

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Abstract

INTRODUCTION AND AIMS: Osteoprotegerin (OPG), which is also known as osteoclastogenesis inhibitory factor, is a cytokine, member of the tumour necrosis factor (TNF) receptor superfamily, which was firstly known for its ability to inhibit osteoclastic activity and is produced at the cardiovascular system. Previous studies evidenced that its levels are higher in both aorta and renal arteries. Clinical studies have shown that serum OPG concentrations are increased in diabetic patients and may serve as an independent risk factor of cardiovascular events. Thus, we decided to study the relationship between serum OPG, endothelial dysfunction and lesions in target organs (kidney, heart, vessels) in hypertensive and diabetic patients.

METHODS: OPG serum levels were analyzed by an ELISA immunoassay in 245 patients (median age: 55 years; 63% male): 139 hypertensive, 52 diabetic and 54 healthy controls matched by age and sex. Basal glycaemia, glycated haemoglobin endothelial dysfunction (by measurement of pulse wave velocity, PWV), retinopathy, left ventricular hypertrophy and renal function were monitored.

RESULTS: We found correlations between serum OPG levels and both basal glycaemia and glycated haemoglobin, which are factors that contribute to the development of endothelial dysfunction. We also found a strong correlation between serum OPG and PWV, which evidences endothelial damage, and also between OPG and retinopathy and increased number of damaged target organs, in either hypertensive or diabetic patients.

CONCLUSIONS: Our data shows for the first time that increased serum OPG levels may indicate an increased cardiovascular risk in both hypertensive and diabetic patients.