

Association of electrocardiographic altered P wave dispersion and vascular endothelial growth factor in rheumatoid arthritis

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Abstract

Objectives

Serum vascular endothelial growth factor (VEGF) levels correlate with structural alterations in Rheumatoid Arthritis (RA). Since P wave dispersion (PWD) is associated with atrial ischemic-related fibrotic changes, it was conceived that there may be a correlation between altered PWD and increased VEGF levels in RA.

Methods

In this prospective observational study, we evaluated patients with RA, and compared them to control subjects. PWD was considered as the difference between the maximum and minimum duration of the P wave. An altered PWD was considered one that had dispersion ≥ 38 ms. Measurements of VEGF serum levels were performed using enzyme-ligand, immunosorbent measurement ELISA kits.

Results

A total of 99 patients with RA, and 48 control subjects were evaluated. The PWD was 25.334.9ms in the control group vs. 57314.9ms ($p < 0.0001$) in the RA group. No patient in the control group had altered PWD, while 94 (95%) patients in the RA group presented it ($p < 0.0001$). The value of VEGF in the control group was 15.2315.1pg/ml vs 51.1355.5pg/ml ($p < 0.001$) in RA. The value of VEGF in RA without altered PWD was 20312pg/ml vs 56357pg/ml in RA with altered PWD ($p < 0.02$). An elevated VEGF value had a specificity of 80%, and a positive predictive accuracy of 95% in predicting altered PWD in RA.

Conclusions

This study establishes for the first time that RA patients who possess significantly higher serum levels of VEGF have an altered PWD. The presence of an elevated VEGF serum value has a high specificity, and high positive predictive accuracy of the existence of altered PWD in RA.