Vascular endothelial growth factor as an angiogenesis biomarker for the progression of autosomal dominant polycystic kidney disease

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ABSTRACT. Autosomal dominant polycystic kidney disease (ADPKD) is a hereditary nephropathy characterized by abnormal growth of epithelial cells. Genetic factors, including the vascular endothelial growth factor (*VEGF*) gene, play an important role in its progression. The main aim of this study was to evaluate the influence of *VEGF*-C936T polymorphism in the development and progression of ADPKD. In total, 302 individuals were studied and divided into two groups: G1 (73 patients with ADPKD) and G2 (229 individuals without the disease). Among the patients, 46 (63%) progressed to end-stage renal disease (ESRD), and required hemodialysis and/or renal transplant. These patients were re-grouped into G1-A for progression analysis. A peripheral blood sample was obtained from all subjects; the DNA was extracted and the *VEGF*-C936T polymorphism analyzed using polymerase chain reaction/

restriction fragment length polymorphism. The significance level was set at $P < 0.05$. The homozygous wild-type genotype (C/C) was predominant in G1 (78%) and G2 (79%; $P = 0.9249$). We observed a significant reduction in the mean age of patients with the risk allele (C/T + T/T = 44.3 ± 13.4 years) compared to the C/C genotype (52.2 ± 9.6 years; $P = 0.047$) in G1-A. In conclusion, the *VEGF*-C936T polymorphism does not discriminate patients from controls. However, the presence of the T allele appears to accelerate the progression of ADPKD, anticipating ESRD, thereby suggesting its importance in the prognosis of the disease. However, the importance role played by *VEGF* gene variants in different populations and larger sample sizes must be verified.

Key words: Progression; End-Stage Renal Disease; Polymorphism; VEGF

