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Thrombophilia and atherosclerosis related gene polymorphism in retinal vein occlusion

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Introduction Retinal vein occlusion is the second most prevalent blinding retinal vascular disorder with a prevalence of around 0.4% in the population. Risk factors for RVO largely coincide with risk factors for cardiovascular disease (CVD). However, its exact pathomechanism is still unknown. In order to explore more on its pathomechanism, our study aim is to investigate thrombophilia and atherosclerosis related gene polymorphism associated with CVD in patients with RVO.

Methods We included 485 RVO patients and 295 control subjects who were recruited in this case-control study. We determined genetic polymorphisms by polymerase chain reaction.

Results In this study, we could not find an association between the presence of RVO and the ABO blood group ($p=0.693$), the HO-1 associated polymorphism at rs2071746 genotype ($p=0.443$), the two PON-1 associated polymorphism at rs854560 ($p=0.451$) and at rs662 ($p=0.466$). The allele frequencies in the adiponectin polymorphism at rs1501299 were significantly different distributed in RVO patients and controls ($p=0.023$). Patients with at least one T allele had an OR of 0.74 (0.55-0.99, $p=0.041$) for being an RVO patient. This association remained after multivariable adjustment.

Discussion In this study, we could only find an association between the adiponectin polymorphism and RVO. The T allele at the rs1501299 polymorphism of the adiponectin gene was shown to be protective for cardiovascular disease. The proposed mechanism is the association of the T allele with higher plasma adiponectin levels and lower concentrations of triglycerides and small dense LDL.