

Association of HTRA1 and ARMS2 gene polymorphisms with response to intravitreal ranibizumab among neovascular age-related macular degenerative subjects

ABSTRACT

Background: The association of HTRA1 rs11200638 and ARMS2 rs10490924 gene polymorphisms with response to intravitreal ranibizumab therapy among neovascular AMD (nAMD) subjects in Malaysia was determined in this study, followed by the expression of HTRA1 and ARMS2 genes.

Results: Both single nucleotide polymorphisms (SNPs) recorded a significant association between nAMD and controls with HTRA1 rs11200638 at $P = 0.018$ (OR = 1.52, 95% CI = 1.07-2.15) and ARMS2 rs10490924 at $P < 0.001$ (OR = 2.44, 95% CI = 1.75-3.42). An association was also observed in response to ranibizumab for both SNPs in a logistic regression analysis ($P < 0.001$). The mRNA levels in the HTRA1 variant between responder and non-responder groups were significantly different for the homozygous non-risk GG genotype ($P = 0.032$).

Conclusions: The HTRA1 rs11200638 and ARMS2 rs10490924 gene polymorphisms are associated with nAMD among Malaysians. Both gene polymorphisms were also correlated with response to intravitreal ranibizumab therapy based on visual and anatomical outcomes especially the HTRA1 rs11200638 variant.

Keyword: Age-related macular degeneration; Age-related maculopathy susceptibility 2; High temperature requirement a serine peptidase 1; Polymorphism; Ranibizumab