

AB021. The effect of anti-VEGF on retinal inflammation and its relationship with the Kinin system in a rat model of laser-induced choroidal neovascularization

Olivier Fontaine¹, Soumaya Achana¹, Réjean Couture¹, Mark R. Lesk^{2,3}, Elvire Vaucher¹

¹Laboratoire de Neurobiologie de la Cognition Visuelle, École d'optométrie, Université de Montréal, Montréal, QC, Canada; ²Maisonneuve-Rosemont Hospital, Research Center, Montreal, Quebec, Canada; ³Department of Ophthalmology, Faculty of Medicine, Université de Montreal, Montreal, Quebec, Canada

Background: The neovascular aged-related macular degeneration (AMD) is the leading cause of legal blindness in the elderly. It is presently treated by anti-VEGF intravitreal injection in order to stop the neovascularization. In seeking of more efficient treatments to prevent retinal damage, it has been proposed that the kinin-kallikrein system (KKS), a key player in inflammation, could be involved in AMD etiology. However, the role of kinin receptors and their interaction with VEGF in AMD is poorly understood.

Methods: In order to address this question, choroidal neovascularization (CNV) was induced in the left eye of Long-Evans rat. After laser induction, anti-VEGF or IgG control were injected into the vitreal cavity. Gene expression was measured by qRT-PCR, retinal adherent leukocytes were labelled with FITC-Concanavalin A lectin, vascular leakage by the method of Evans blue and cellular localisation by immunohistochemistry.

Results: The number of labelled adherent leucocytes was significantly increased in laser-induced CNV compared to the control eye. This was significantly reversed by one single injection of anti-VEGF. Extravasation of Evans blue dye was significantly increased in laser-induced CNV eyes compared to control eyes and partially reversed by one single injection of anti-VEGF or by R954 treatment. The mRNA expression of inflammatory mediators was significantly increased in the retina of CNV rats. Immunodetection of B1R was significantly increased in CNV eyes. B1R immunolabeling was detected on endothelial and ganglion cells.

Conclusions: This study is the first to highlight an effect of the kinin/kallikrein system in a model of CNV that could be reduced by both anti-VEGF therapy and topically administered B1R antagonist R-954.

Keywords: Aged-related macular degeneration (AMD); Kinin system

doi: 10.21037/aes.2018.AB021

Cite this abstract as: Fontaine O, Achana S, Couture R, Lesk MR, Vaucher E. The effect of anti-VEGF on retinal inflammation and its relationship with the Kinin system in a rat model of laser-induced choroidal neovascularization. *Ann Eye Sci* 2018;3:AB021.