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View Abstract

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AUTHORS

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Commercial Relationships Disclosure: Sumaya Hamadmad: Commercial Relationship: Code N (No Commercial Relationship) | Tyler Heisler-Taylor: Commercial Relationship: Code N (No Commercial Relationship) | Mohamed Abdel-Rahman: Commercial Relationship: Code N (No Commercial Relationship) | Colleen Cebulla: Commercial Relationship: Code N (No Commercial Relationship)

Study Group: OVER-PVR Study Group

ABSTRACT

TITLE:

MIF promoter polymorphism correlation with VEGF level in retinal detachment

ABSTRACT BODY:

Purpose: Macrophage migration inhibitory factor (MIF) is a master regulator of inflammation. We evaluated the correlation between MIF promoter polymorphisms that influence expression of the pro-inflammatory cytokine MIF and levels of downstream cytokines like VEGF in the vitreous of retinal detachment (RD) patients and controls (macular hole (MH), epiretinal membrane (ERM)).

Methods: Patients with retinal detachment (n=36) and controls (n= 29 MH and n=31 ERM) were enrolled and blood samples, vitreous surgical specimens, and clinical data were collected under an IRB-approved protocol. Germline DNA was extracted from mononuclear cells. Two polymorphisms, rs755622 (previously reported in the literature as -173G>C) and rs5844572 (previously reported as -794 $(CATT)_{5-8}$) were evaluated with allele-specific primer PCR. Total vitreous protein levels were measured with BCA assay. ELISA was used to determine vitreous MIF levels. Meso Scale Discovery electrochemiluminescent analysis was used in a subset of patients (n=31 RD, n=28 ERM + n=20 MH controls) to evaluate levels of vitreous cytokines (VEGF, TNF-α, IL-1β, IFN-γ). Averages ± standard deviation were determined. Statistical analysis was performed using Student's t-test.

Results: RD patients had higher MIF levels relative to total protein in the vitreous compared to control patients (0.117 ± 0.212 vs 0.012 ± 0.015 *p-value*=0.005). In RD patients, the MIF C allele rs755622 was found to be associated with higher vitreous levels of MIF. RD patients with this allele had significantly higher vitreous levels of VEGF compared to RD patients without the allele (17.39 ± 16.96 vs 8.79 ± 4.011 *p-value*= 0.028). Although higher levels of VEGF were detected in RD patients with compared to those without the rs5844572 allele (21.343 ± 17.246 vs. 7.797 ± 4.074 *p-value*= 0.007) this was not associated with higher MIF levels. Analysis of the association of the other cytokines is still ongoing.

Conclusions: Specific MIF promoter polymorphisms may influence the level of vitreous cytokines like VEGF in RD patients. Further studies to evaluate MIF's role in retinal disease are needed.

(No Image Selected)

DETAILS

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TRAVEL GRANTS and AWARDS APPLICATIONS

AWARDS: