Abstract: **P4568**

**Effect of intravitreal anti-vascular endothelial growth factor therapy on aortic stiffness and serum interleukin-6 levels in hypertensive patients with age-related macular degeneration**

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**Topic(s):**
Hypertension – Treatment

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**Purpose:** Age-related macular degeneration (AMD) is the leading cause of irreversible blindness in adults over 65 years old and it is associated with moderate to severe arterial hypertension and increased aortic stiffness. Anti-vascular endothelial growth factor (anti-VEGF) agents, injected intravitreally, can reverse the symptoms of neovascular (wet) AMD. We sought to investigate whether intravitreal anti-VEGF therapy may influence aortic elastic properties of hypertensive patients with AMD.

**Methods:** 54 hypertensive patients with exudative (“wet”) AMD received intravitreal ranibizumab (0.5mg) and blood pressure (BP) and carotid-femoral pulse wave velocity (PWV) were measured at baseline (approximately 2 days before the first injection), 24 h after the first and second injection (time interval between the injections: 1 month) and 1 month after the second injection. Serum levels of high sensitivity interleukin-6 (hsIL-6) were measured at three time points (baseline, first injection, 1 month after the second injection).

**Results:** Systolic BP decreased by 3.2 mmHg and by 3.0 mmHg after the first and second injection respectively and remained decreased (by 2.6 mmHg) 1 month after the second injection (overall p=0.07, by ANOVA). The changes in diastolic BP were minimal (overall p=0.74). Ranibizumab injection caused a significant decrease of PWV after the first (by 0.34 m/s) and the second injection (by 0.31 m/s). Furthermore, as upper figure shows, PWV remained decreased 1 month after the second injection. Among the treated naïve eyes, 45 (83%) had a good response to ranibizumab while 9 (17%) were poor responders. Interestingly, PWV decreased significantly in good responders to AMD therapy (overall p=0.004) whereas, it increased in poor responders (overall p=0.21) over the study period. In responders to therapy serum hsIL-6 decreased after the first injection and remained decreased 1 month after the second injection (by 0.63 pg/ml, overall p=0.02, lower figure). The levels of hsIL-6 increased in poor responders (overall p=0.54).

**Conclusions:** This is the first study showing that intravitreal administration of ranibizumab, a anti-VEGF used for improvement of wet AMD was associated with a beneficial acute and mid-term systematic effect on aortic elastic properties. Changes in systemic inflammatory activation may be involved. The findings have important implications for assessing the effect of anti-VEGF interventions on cardiovascular performance in hypertensive patients with exudative AMD.
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Ranibizumab, PWV and serum hsIL-6 levels