

Author(s)

Principal: Selim Orgul
Presenting: Selim Orgul, M.D.
Contributing: Phil Kaeser
Selim Orgül
Claudia Zawinka
Graziella Reinhard
Josef Flammer

- - -

Abstract Information

Abstract Title:

Does the human choroid have a vascular autoregulation?

Purpose:

Some reports have suggested that the human choroid may be autoregulated. Because vascular dysregulation may be relevant to glaucoma, we evaluated the effect of posture change on subfoveal choroidal blood flow (ChBF) in normal volunteers.

Design:

Experimental study

Participants:

twenty-two healthy volunteers

Main Outcome Measures:

change in perfusion pressure (PP) and ChBF

Methods:

The mean ChBF was measured with laser Doppler flowmetry in 22 healthy volunteers with a mean age of 24 + 5 years. Six independent measurements of choroidal blood flow were obtained within 30 minutes in one randomly selected eye of each subject. Subsequently, the subjects assumed a supine position for 30 minutes and a new series of 6 measurements was obtained. Average values of the two series were calculated. Systemic brachial artery blood pressure and intraocular pressure were measured in the baseline and the supine positions. PP was calculated based on formulas derived from ophthalmodynamic studies, rather than on hydrostatic considerations. The influence of changing PP on ChBF was assessed in a linear regression analysis.

Results:

Calculated mean PP increased by 5.4% ($p=0.0032$) and ChBF decreased by 5.4% ($p=0.026$). After correcting for the influence of baseline measurements (sphericity), percent change in PP and percent change in ChBF correlated significantly ($R^2: 0.23$; $p=0.023$).

Conclusion:

The linear relationship between change in ChBF and PP suggests a passive response of the choroidal circulation to the posture change. These results are in contradiction with earlier findings suggesting vascular autoregulation in the choroid.