Retinal Detachment Incidence and Its Association with Barometric Pressure

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Purpose: Factors predisposing to rhegmatogenous retinal detachment (RRD) are an area of significant interest due to the significant morbidity related to this condition. Seasonal variation in detachment rates has been reported and climactic factors such as barometric pressure may increase risk. This study examines the relationship between barometric pressure and incidence of detachment.

Methods: A prospective analysis of all patients presenting to the on-call ophthalmology resident who were eventually diagnosed with a posterior vitreous detachment (PVD), retinal tear, or RRD was performed. Incidence of these events was correlated with barometric pressure.

Results: Thirty-eight patients presented with the events of interest. Thirty-four of 38 took place within the St. Louis area. There was a slight trend towards lower barometric pressure on days with detachments. During the observation period, the mean barometric pressure was 29.994 inHg. Comparison of months with above average barometric pressure to those with below average barometric pressure revealed a significant difference in event frequency by history between the two groups, p = 0.05.

Conclusions: Investigation into risk factors for and causes of RRD has linked intrinsic ocular features such as myopia, vitreous syneresis, and lattice degeneration to detachment. Extrinsic variables have been more challenging to associate with RRD. Our data echoed the previously reported pattern of a summer peak and winter trough in detachments. However, a given day’s barometric pressure did not correlate significantly with the occurrence of a detachment, nor did daily fluctuations in barometric pressure. Using historical accounts of the date of symptom onset suggested a trend towards significance. A comparison of monthly detachment frequency and mean monthly barometric pressure revealed a significantly higher detachment rate with above average barometric pressure. This study provides preliminary evidence supporting the hypothesis that barometric pressure may impact incidence of retinal detachment. Determining the exact date of symptom onset is crucial to drawing accurate correlations and the challenge of establishing an accurate time frame undercuts our ability to draw reliable conclusions.

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Fundus Autofluorescence Findings in a Mouse Model of Retinal Detachment