Recurrent Vitreous Cavity Hemorrhage Requiring Repeat Surgery in Diabetics following Vitrectomy for Complications of Proliferative Diabetic Retinopathy: Incidence, Visual Outcomes, and Associations

Nora Khatib1, Dhanu Meleth2, Robert Garoon1, Mediha Ahmad1, Cindy Hwang3, Usha Pinninti4, Golnaz Javey5, Petros
1Baylor College of Medicine, 2Marietta Eye Clinic, 3Emory University, 4Houston Retina Associates, 5Piedmont Eye Center

Introduction
Vitrectomy for proliferative diabetic retinopathy (PDR) can be complicated by post-operative recurrent vitreous hemorrhage (VH) in up to 29% of eyes.1,2 It can take 7 to 11 weeks for recurrent VH to clear spontaneously.3 However, in some eyes the recurrent VH does not clear and repeat vitrectomy must be performed. It has been thought that blood glucose and blood pressure control may be risk factors for post-operative recurrent VH. Identifying potential risk factors for post-operative VH requiring repeat surgical intervention would be of benefit to aid vitreoretinal surgeons with pre-operative planning and to provide better counseling to patients.

Objective
To determine a predictive factor for recurrent VH requiring surgical intervention in diabetics after initial surgery for complications of PDR to aid with pre-operative planning.

Purpose
To evaluate the incidence, visual outcomes and associations of recurrent vitreous cavity hemorrhage (VH) requiring repeat pars plana vitrectomy (PPV) in diabetic patients who had previously undergone PPV for complications of proliferative diabetic retinopathy (PDR).

Methods
Retrospective single center chart review study of eyes that underwent PPV for complications of PDR between June 2010 and December 2013. A 23 or 25 gauge pars plana vitrectomy was performed for PDR with VH with or without a tractional retinal detachment. All patients received maximal pan-retinal photocoagulation with endolaser. Group R included diabetic eyes requiring repeat PPV for recurrent VH following initial surgery for PDR and Group N included diabetic eyes that did not require additional surgical intervention after PPV for complications of PDR. Patients were excluded if VH was due to reasons other than PDR and if follow-up was less than 3 months. Demographic data, visual acuity (VA), hemoglobin A1c (HbA1c), and systolic blood pressure (BP) were reviewed. Statistical comparisons were made using Student’s two-tailed t-test.

Results
Of the 360 diabetic eyes that underwent PPV for complications of PDR, twenty (5.6%, Group R) had recurrent post-vitrectomy VH requiring repeat vitrectomy and 340 eyes (Group N) did not have persisting VH requiring additional intervention. There were no differences in mean HbA1c in Group R (7.8%, range 5.4-11.8%) and Group N (8.3%, range 4.2 to 14.9%) (p=0.46). Average systolic blood pressure was 146 (range 112-330) in Group R and 141 (range 83-210) in Group N (p=0.31). Average final Snellen VA was 20/640 (logMAR 1.5) in Group R and 20/1000+2 (logMAR 1.66) in Group N (p=0.44).

Conclusions
A small proportion of patients undergoing vitrectomy for complications of PDR require repeat surgical intervention for recurrent VH. There was no clear association between HbA1c and systolic blood pressure and need for repeat PPV for recurrent VH after initial PPV for PDR. Glucose and blood pressure control do not appear to be predictors of additional surgical intervention for non-clearing VH after PPV for PDR. Final VA was similar between the two groups and does not appear to be affected by repeat surgical intervention and complications of PDR.

References

Disclosures
The authors have no financial interests or disclosures.
Methods

• Retrospective single center chart review

• **Inclusion Criteria:** 23 or 25 gauge pars plana vitrectomy (PPV) for proliferative diabetic retinopathy (PDR) with vitreous hemorrhage (VH) with or without a tractional retinal detachment

• **Exclusion Criteria:** VH due to reasons other than PDR; follow-up <3 months

• **Group R:** diabetic eyes requiring repeat PPV for recurrent VH following initial surgery for PDR

• **Group N:** diabetic eyes not requiring additional surgical intervention following initial surgery for PDR

• Collected demographic data, visual acuity (VA), hemoglobin A1c (HbA1c), and systolic blood pressure (BP)
Results

• Of the 360 diabetic eyes that underwent PPV for complications of PDR, twenty (5.6%, Group R) had recurrent post-vitrectomy VH requiring repeat vitrectomy and 340 eyes (Group N) did not have persisting VH requiring additional intervention.

• No difference in mean HbA1c in Group R (7.8%, range 5.4-11.8%) and Group N (8.3%, range 4.2 to 14.9%) (p=0.44)

• No difference in average systolic BP in Group R (146, range 112-130) and Group N (141, range 83-210) (p=0.31)

• Average final Snellen VA was 20/640 (logMAR 1.5) in Group R and 20/1000+2 (logMAR 1.66) in Group N (p=0.44)
Conclusions

• A small proportion of patients undergoing vitrectomy for complications of PDR require repeat surgical intervention for recurrent VH (5.6%)

• No clear association between HbA1c or systolic blood pressure and need for repeat PPV for recurrent VH after initial surgery for PDR. Glucose and blood pressure control do not appear to be predictors of additional surgical intervention for non-clearing VH after PPV for PDR

• Final VA does not appear to be affected by repeat surgical intervention and complications of PDR