Accepted Manuscript

The risk of primary open angle glaucoma following vitreoretinal surgery- a population-based study

Sasha A. Mansukhani, M.B.B.S., M.S, Andrew J. Barkmeier, M.D, Sophie J. Bakri, M.D, Raymond Iezzi, M.D, Jose S. Pulido, M.D., M.S., M.P.H., M.B.A, Cheryl L. Khanna, M.D., Jeffrey R. Bennett, O.D, David O. Hodge, M.S, Arthur J. Sit, S.M., M.D

PII: S0002-9394(18)30289-7

DOI: 10.1016/j.ajo.2018.06.010

Reference: AJOPHT 10554

To appear in: *American Journal of Ophthalmology*

Received Date: 14 February 2018

Revised Date: 30 May 2018

Accepted Date: 12 June 2018

Please cite this article as: Mansukhani SA, Barkmeier AJ, Bakri SJ, Iezzi R, Pulido JS, Khanna CL, Bennett JR, Hodge DO, Sit AJ, The risk of primary open angle glaucoma following vitreoretinal surgery- a population-based study, *American Journal of Ophthalmology* (2018), doi: 10.1016/j.ajo.2018.06.010.

Abstract

Purpose: To determine the risk of primary open angle glaucoma (POAG) following vitreoretinal surgery.

Design: Retrospective, population-based cohort study.

Methods: All residents of Olmsted County, Minnesota, undergoing scleral buckle and/or vitrectomy between 2004 and 2015 were included in the operative cohort. The fellow non-operative eyes were included in the comparison cohort. The study and comparison cohorts consisted of 344 and 277 eyes respectively. The main outcome measure was the development of POAG. Secondary glaucomas were excluded. The probability of glaucoma in operative eyes and non-operative fellow eyes was compared. The observed rate of POAG in the operative eyes was also compared to the rate of POAG in the population of Olmsted County.

Results: The mean age was 64.7 years and the median follow up period was 4.9 years. There were 58, 57, and 229 study eyes in the scleral buckle, scleral buckle with vitrectomy, and vitrectomy only cohorts respectively. The 10 year cumulative probability of developing glaucoma was significantly greater in the operative group (8.9%, 95% CI 3.8-14%) compared to the non-operative group (1.0%, 95% CI 0-2.4%; p=0.02). None of the eyes in the scleral buckle group developed glaucoma. The 10 year probability of POAG was 17.5 % (95% CI 0-34.9%) and 10.0 % (95% CI 3.0-17.0%) in the scleral buckle with vitrectomy and vitrectomy alone cohorts respectively. The rates of POAG in operative eyes undergoing scleral buckle with vitrectomy and vitrectomy alone was significantly greater than the rate of POAG for the Olmsted County general population (1.0 %, p<0.001).

Conclusion: The risk of POAG is increased after vitrectomy.