Commentary: Corneal endothelial cell changes in diabetics versus age-group matched nondiabetics after manual small incision cataract surgery (SICS)

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Manual small incision cataract surgery is an established alternative to phacoemulsification and gives similar results, with lesser inputs and lesser carbon footprint.[1] However, most of the maneuvers in manual small-incision cataract surgery are in the anterior chamber, closer to the corneal endothelium, unlike phacoemulsification where the action takes place in the capsular bag. Hence, there has been a perception that manual SICS may cause more endothelial cell loss. Nevertheless, this has been disproved by previous studies.[1,2]

Diabetes forms a significant proportion of persons undergoing cataract surgery.[3] Kudva *et al*. need to be commended for conducting a simple, yet elegant, study on the comparison of corneal endothelial changes in diabetics versus age-matched nondiabetic subjects after manual SICS.[3] The study demonstrates a significant steady decrease in corneal endothelial cell density over the follow-up period of 3 months, though corneal thickness was near the baseline during that follow-up period. There was a significantly increased corneal thickness observed in diabetics over a month. The population-based SN-DREAM study (Sankara Nethralaya-Diabetic retinopathy epidemiology and molecular genetic study) from Chennai reported lower endothelial cell counts in diabetic patients.[4] Studies comparing endothelial cell loss after cataract surgery by phacoemulsification in diabetics and nondiabetics report greater loss among diabetic patients.[5,6]

The authors have not given the details of the allocation of patients to both groups. There were two potential confounders; the diabetic group had more mature and hypermature cataracts, and a higher proportion of poorly dilating pupils. More mature cataracts in the diabetic group may be because diabetics have to wait longer for surgery if their glycemic control was not optimal. A sample size calculation to have adequate power for the study would also have helped. The follow-up was also till 3 months. As central corneal thickness and endothelial morphology keep on changing, the authors should attempt a 1-year follow-up of their sample to answer the study question better.

Complications of diabetes are related to the duration and severity of the disease. The duration of diabetes did not seem to affect the endothelium in this study.[3] Eyes with proliferative diabetic retinopathy undergoing cataract surgery in Korea had more endothelial changes, compared to nondiabetics or those with nonproliferative diabetic retinopathy.[7]

The authors conclude that morphological changes in the cornea of diabetics were associated with low functional reserve.[3] Diabetic patients with cataracts, especially elderly and with harder cataracts should undergo specular microscopy wherever possible and extra care should be taken to preserve the endothelium during surgery. This could be done by using a larger tunnel and higher viscosity ophthalmic viscous devices.

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Quick Response Code:

Website: www.ijo.in

DOI: 10.4103/ijo.IJO_2196_19

Cite this article as: Gogate P. Commentary: Corneal endothelial cell changes in diabetics versus age-group matched nondiabetics after manual small incision cataract surgery (SICS). Indian J Ophthalmol 2020;68:77.