

Surgical Outcomes of Cataract Surgery Following Rapid Glycemic Control During Preoperative Period [Response to Letter]

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Dear editor

We would like to thank you for giving us the opportunity to respond to the Drs Haque and Hoque for their insightful comments on our study.¹ Their comments on perioperative glycemic control strategies for patients with type 2 diabetes have greatly inspired and provoked our thinking. We would like to provide our perspective on their comments related to several methodological and statistical points in their letter.

First, we agree with alternative approaches, such as B-scan ultrasonography or intraoperative wide-field imaging for the preoperative fundus assessment. All patients in our study routinely underwent B-scan ultrasound, intraoperative wide-field imaging, and Optical Coherence Tomography (OCT) of the macula to exclude the severe complications of the fundus before and after surgery. Uncontrolled glycemic level has a strong relevance to the diabetic retinopathy.² Rapid glycemic fluctuation also has been reported to be associated with deterioration of retinopathy in previous studies.³ Therefore, one of the focus we attended in our study was the severe complications of retinopathy after cataract surgery following rapid glycemic control. Due to the lens opacity before surgery, the grading of retinopathy were not absolutely identified in patients, we presented the grading of retinopathy without severe complications according to the examination of fundus at postoperative one week. We found that the proportion of severe retinopathy was higher in the rapid control group than that in the basic control group. Based on this baseline, we observed the occurrence of postoperative complications during the follow-up, and the average occurrence time of severe complications including macular edema and vitreous hemorrhage was 3.6 ± 1.9 months that was presented in our article.¹ According to the grading of retinopathy, timely intervention and enhancing patients' compliance with postoperative follow-up and treatment play a key role in preventing severe complications. We appreciate the comments provided by Drs Haque and Hoque, and hope provide more definitive baseline data in future studies where dense cataracts preclude preoperative fundus assessment.

Second, in order to maintain consistency in the direction of coefficients for all risk factors of the output results, we encoded the outcome variable as "no postoperative complications" when constructing this generalized linear mixed model. The odds ratio (OR) value was calculated based on the outcome variable "no complications" in Table 3. Therefore, the OR for moderate to severe non-proliferative diabetic retinopathy (NPDR) is 0.119 (95% confidence interval [CI]: 0.054–0.263, $P < 0.001$), and as Drs Haque and Hoque note this interpretation is fully consistent with the descriptive statistics (Tables 1 and 2) and clinical expectations.

Third, we presented the proportion of complications in different subgroups within the overall cohort, and analyzed the differences of prophylactic intervention efficacy through quantity distribution. As Drs Haque and Hoque mentioned, while the current presentation is mathematically accurate when referencing the total cohort, it may underestimate the apparent benefit of prophylactic treatment in preventing complications. We thank the Drs Haque and Hoque for

proposing a more precise expression that using subgroup-specific denominators to provide a clearer assessment of the protective effect of timely intervention. In rapid control group, 56 eyes (35 preoperative +21 early postoperative) undergoing intervention of retinopathy in Table 1 was consistent with the 56 eyes (55 eyes without complications and 1 eye with complications) that were presented in Table 4.

Finally, the limitation of a retrospective study with small sample size was mentioned in our article. Endophthalmitis was one of severe blinding complications after cataract surgery. Perioperative nursing strategies for patients undergoing cataract surgery was increasingly perfected, especially the use of intraoperative cefuroxime in irrigating solution, postoperative endophthalmitis after phacoemulsification could decrease to 0.01%.⁴ In our study, endophthalmitis, hyphema or incision leakage were not observed after cataract surgery and excellent visual outcomes were achieved in these rapid glycemic control cases. The data persuasively indicated that cataract surgery can be performed successfully following short-term glycemic control. Nevertheless, due to the limitations of retrospective studies, future prospective studies with more optimized clinical research design may contribute to establish more sufficient evidence-based glycemic strategies in the perioperative management for patients with type 2 diabetes.

Disclosure

The authors report no conflicts of interest in this communication.

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