



VISUAL OUTCOMES IN DIABETIC PATIENTS FOLLOWING CATARACT SURGERY

Ophthalmology

Dr Raghavendra R	Associate Professor, Department Of Ophthalmology, Mysore Medical College And Research Institute, Mysore.
Dr Athira K*	Junior Resident, Department Of Ophthalmology, Mysore Medical College And Research Institute, Mysore. *Corresponding Author
Dr Nischala Balakrishna	Senior Resident, Department Of Ophthalmology, Mysore Medical College And Research Institute, Mysore.

ABSTRACT

Introduction:- To determine visual outcome and intraoperative and postoperative complications following cataract surgery in diabetic patients with visually significant cataract. **Materials And Method :-** This is a prospective interventional study of 100 diabetic cataract patients attending outpatient department of ophthalmology in a tertiary eye care government hospital who underwent manual SICS from October 2021 to January 2022. Intra-operative and post-operative complications were noted on follow up. **Results:-** Out of 100 patients, 68% of patients had post operative visual acuity 6/12 or better. Most common complication noted intraoperatively was posterior capsular rent and post operatively was striate keratopathy (38%) which was mild in 22% cases. Other complications noted include vitreous loss, corneal edema, serous uveitis, fibrinous uveitis with posterior synechiae, posterior capsular opacity, pseudophakic bullous keratopathy and clinically significant macular edema. **Conclusion:-** Visual improvement was seen in diabetic patient with cataract following surgery. Poor visual outcome in diabetics was mainly due to retinopathy, maculopathy or surgical complications. Monitoring for progression of diabetic retinopathy in postoperative period and timely treatment may enhance visual outcome.

KEYWORDS

Diabetic cataract, Cataract surgery, Striate keratopathy, Macular edema

INTRODUCTION

Globally, cataracts remain one of the leading causes of blindness(1). Cataracts occur at an earlier age and 2-5 times more frequently in patients with diabetes, thus the visual loss has a significant impact on the working population.(2,3).

The outcome of surgery in these patients strongly depend on duration of diabetes, glycemic control and additional comorbidities like hypertension. Preoperative complications like difficulty in pupillary dilatation prior to surgery, slow onset of action of anaesthetic agents and intraoperative complications like zonular dialysis can affect quality of surgery. In addition, these patients have increased rates of capsular contraction and posterior capsular opacity.

Advances in cataract surgery have generally improved the outcomes, however diabetic individuals do not always share the same favourable outcomes. Some studies have reported that cataract surgery may have adverse effects, including progression of retinopathy, vitreous haemorrhage, iris neovascularization and decrease or loss of vision.(4-6).

It is prudent to maintain optimal levels of glycosylated haemoglobin even after surgery as this can help control the levels of ocular inflammation, edema and intraocular infections.

This study was done to determine the visual outcome in diabetic patients with visually significant cataract following cataract surgery

OBJECTIVES:

1. To determine the visual outcome following cataract surgery in diabetic patients with visually significant cataract.
2. To determine the intraoperative and postoperative complications following cataract surgery in diabetic patients with visually significant cataract.

Inclusion Criteria:

1. Diabetic patients with visually significant cataract

Exclusion Criteria:

Diabetic patients with

1. Complicated cataract secondary to Uveitis and Myopia.
2. Traumatic cataract.
3. Patients who have undergone panretinal or grid photocoagulation / surgical treatment.
4. Neovascularisation of iris.
5. Secondary glaucoma

MATERIALS AND METHODS:

This is a prospective interventional study of 100 diabetic cataract patients attending outpatient department of ophthalmology in a tertiary eye care government hospital who underwent manual SICS from October 2021 to January 2022.

Preoperative Evaluation

After obtaining institutional ethical committee approval, consent was obtained from patients.

A full medical and ocular history was taken before cataract surgery together with blood and urine samples to determine HbA1c, S-creatinine and U-albumin. The duration of diabetes, method of treatment, systemic and ocular co-morbidities was recorded. The diagnosis of diabetes was based on fasting blood sugar of >120mg/dl and post prandial blood sugar >200 mg/dl. All patients routinely had preoperative fasting blood glucose and postprandial blood sugar analysis within one week of the surgery.

A complete ocular examination was performed initially and at each follow-up examination (on day 1, at 1 week, 1, 3 and 6 months). This included determination of best-corrected visual acuity (VA), tonometry, detailed anterior segment examination and posterior segment examination by slit lamp

Surgery

Small incision cataract surgery(SICS) with posterior chamber intraocular lens implantation (PCIOL) under peribulbar anaesthesia was the procedure of choice.

Post Operative Evaluation

Intra-operative and post-operative complications of cataract surgery was noted for all patients. At all subsequent visits, patients were subjected to the slit-lamp examination, fundus examination and visual acuity recording.

On the first post-operative day, all the patients were subjected to above mentioned investigations. Visual acuity was assessed. On discharge all patients were put on corticosteroid and antibiotic combination eye drops 10 times per day, which was then tapered over a period of 6 weeks. The patients were asked to review at 1 week and 1 month from the date of surgery.

Posterior capsular opacification (PCO) was done by Evaluation of PCO grading. The final visual outcome was recorded using snellen's visual acuity chart.

RESULTS

Table 1: Post operative unaided visual acuity at 6 weeks shows 68% patients with visual acuity between 6/6 and 6/12. 18% patients had vision between 6/18 and 6/24. 14% patients had visual acuity between 6/36 and 6/60.

Post operative visual acuity	No of patients	Percentage
6/6 -6/12	68	68
6/18 -6/24	18	18
6/36- 6/60	14	14

Table 2: Shows intraoperative complications in diabetic patients undergoing cataract surgery. The table shows 2% patients having vitreous loss and 5% patients having posterior capsular rent.

INTRAOPERATIVE COMPLICATION	NO OF PATIENTS	PERCENTAGE(IN %)
Vitreous loss	2	2
Posterior capsule rent	5	5

Table 3 shows post operative complications in diabetic patients undergoing cataract surgery. The table shows 38% patients having striate keratopathy, 12% with serous uveitis, 5% having cystoid macular edema. Pseudophakic bullous keratopathy is seen in 2%, fibrinous uveitis with posterior synechiae in 5% and posterior capsule opacity is seen in 13%. Progression of diabetic retinopathy seen in 27% patients.

POST OPERATIVE COMPLICATION	NO OF PATIENTS	PERCENTAGE
Striate keratopathy	38	38%
Serous uveitis	12	12%
Fibrinous uveitis with posterior synechiae	5	5%
Progression of diabetic retinopathy	27	27%
Cystoid macular edema	5	5%
Pseudophakic bullous keratopathy	2	2%
Posterior capsule opacity	13	13%

DISCUSSION

This study shows visual acuity improved in 86% of patients at the end of 6 weeks which is in agreement with the findings of Krepler K et al (7) who concluded in their study that visual acuity improved in 85% of diabetic patients post cataract surgery. Their study also showed CSME occurred in 13 operated eyes (31%) in contrast to our study which showed development of CSME in 5% eyes.

Onakpoya OH (8) et al reported that posterior capsule rent was the most common complication in their study which was similar to the findings in our study. They also reported that the post operative visual acuity improved in 16 (84.2%), remained the same in 2 (10.5%) and was worse in 1(5.3%) patient similar to our study which showed improvement of visual acuity in 86% patients. Most common post operative complication was striate keratopathy in our study.

Menchini et al. reported intraocular inflammation as the most common complication in their study (9). One of the important cause for non improvement of vision post cataract surgery in diabetic patients is development of cystoid macular edema which was found to be 3% in our study.

In this study there was postoperative progression in 27% of eyes among which 5 patient progressed from no diabetic retinopathy to NPDR, 19 patients had acceleration of NPDR and 4 patients progressed from NPDR to PDR. Thus the commonest pattern of progression seen in our group was worsening of pre existing NPDR which was similar to the study by Pollock et al.

A study by Chaudhary C et al (10) showed following SICS incidence of clinical CME was 2% and after phacoemulsification was 1%. BCVA was not affected in patients with subclinical CME but decreased vision was seen in patients with clinical CME.

In a study on a comparative study of outcome of cataract surgery in diabetic and non-diabetic patients by Poonam et al (11) showed the

development of PCO in diabetics was 25 (12.5%) compared to 12 (6%) in non- diabetics, at the end of 4 weeks, confirming the finding of increase in incidence of PCO in diabetics as shown in previous studies. Our study also showed development of PCO in 13% patients. Study by Ebihara Y et al. (12) also showed significant increase in PCO in diabetic compared to non- diabetic patients. A study by Hyashi K et al. also showed significant increase in PCO in diabetics after cataract extraction compared to non-diabetics

CONCLUSION

Visual improvement was seen in diabetic patient with cataract following surgery. Poor visual outcome in diabetics was mainly due to retinopathy, maculopathy or surgical complications. Monitoring for progression of diabetic retinopathy in postoperative period and timely treatment may enhance visual outcome.

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