Proceeding S.Z.P.G.M.I vol: 6 (1992), pp. 24-30.

A Review of 1000 Cases of Intraocular Lens Implantation

Jehangir Durrani, Hamid Mahmood
Department of Ophthalmology, Shaikh Zayed Postgraduate Medical Institute, Lahore

SUMMARY

One thousand cases of cataract extraction with Intraocular lens implantation done at Shaikh Zayed Postgraduate Medical Institute, Lahore are reviewed. Pre and post-operative visual status is compared. The power of IOL to be implanted was determined by "Estimation" method in 34% and by Biometric computation in 66% of patients. IOLs were implanted under a cushion of air in 48% of cases and with the help of a viscoelastic substance in 52%. Final best corrected visual acuity of 6/12 or better was achieved in 88.6% of the patients who completed the follow up study period. Post-operative complications are discussed. A comparison of results with two international studies is presented.

INTRODUCTION

Intraocular lens implantation is fast becoming the procedure of choice in correcting surgical aphakia throughout the world[1,2]. Even in the developing countries it is being done with increasing frequency[3-5]. An intraocular lens (IOL) can be implanted at the time of cataract extraction, as a primary procedure, or even later on, as a secondary procedure, in patients who have had cataract extractions previously. IOLs have been implanted after an intracapsular cataract extraction, as well as, after an extracapsular one. They have been fixated in the anterior chamber angle, at the iris plane, in irido-capsular location, in the sclera, in the ciliary sulcus, as well as, in the capsular bag that remains after a disk of anterior capsule of the crystalline lens is removed to deliver the nucleus and the opaque cortical fibers of the cataractous lens[6-10].

The reason for such popularity of IOL for optical correction of an aphakic eye over the other means of correction, namely the aphakic spectacles and the contact lenses[11,12], is simple: It mimics nature more closely than any other method available. There is no cosmetic blemish of thick spectacle lenses resembling the bottoms of coke bottles. The magnification of image size (35% with aphakic spectacles and 7% with contact lenses) is minimal (only 3%) and therefore the brain doesn't need to readjust or re-orient itself to the new situation. This also obviates diplopia from aniseikonia, a special advantage in cases of unilateral aphakia. Stereopsis from preservation of binocularity is achieved without any difficulty. Peripheral visual field constriction, inherent with the aphakic spectacles, is absent with IOLs, permitting the patient to navigate and even to drive as safely and as normally as before. What is more, a pseudophakic patient does not have to grope for his glasses in the middle of the night, like an aphake, in order to be able to go to the bath room. In short, the pseudophakic patient enjoys vision as close to normal as is humanly possible to achieve at present. The only important faculty he lacks is the power of "Accommodation", i.e. the ability to focus at variable distances of gaze. Work is being done on these lines and future may have these and other advantages in store.

Intraocular lens implantation, thus, produces a more esthetic result with early rehabilitation and far superior functional achievement than any other method of handling the problems associated with cataract. The percentage of cataract patients receiving IOLs at our Institute has gone up to almost ninety percent within the last four years.

PATIENTS AND METHODS

We reviewed 1,000 cases of IOL implantation done at the Shaikh Zayed Postgraduate Medical

Institute, Lahore. The purpose of the study was to evaluate our results regarding the visual outcome and to review any complications of the procedure in the long run.

The study encompasses the period between June 1987 and June 1991, with a follow-up of 6 to 48 mos. Of the total, seven hundred and fifty cases of IOL implantation were done by the principal author and two hundred and fifty by the second author. The ages of patients ranged from 2 to 95 years, with a mean of 55.7 years. (Table-1). Six hundred and sixty (66%) were males, while three hundred and forty (34%) were females. Important associated systemic and ocular problems were also taken into consideration. (Table 2). One hundred and seventy patients (18.4%) had diabetes mellitus, one hundred and twelve (12.1%) had hypertension and twenty four (2.6%) had glaucoma. All these problems were controlled before the patients were subjected to the elective surgical procedure.

Table 1: Demographic characteristics.

Age	Minimum	2	
	Maximum	95	
	Mean	55.7	
Sex	Male	660	66%
	Female	340	34%
Duration	June'87 to June'91		
Follow-up	6 - 48 months		

Table 2: Associated diseases.

Disease	No. of Patients.	Percentage
Diabetes mellitus	170	18.4
Hypertension	112	12.1
Glaucoma	24	2.6

A thorough ophthalmic examination was performed on all patients, including preoperative visual acuity of the eye to be operated on, as well as, the fellow eye, retinoscopy whenever possible, external and slitlamp examination, applanation tonometry and funduscopy by direct and indirect ophthalmoscopes. Facial block and retrobulbar anesthesia were given using 2% Xylocaine with 1:100,000 Adrenaline in non hypertensives and without Adrenaline in hypertensive individuals. Intravenous Diazepam and Pethidine were administered in titrated amounts. General anesthesia was used in patients under forty years of age. Extracapsular cataract extraction with closed chamber manual irrigation and aspiration with a Simcoe type I/A cannula using Balanced Salt Solution was performed under microscopic visualization. IOL was inserted under a cushion of air in the earlier part of the study in four hundred and eighty one patients (48.1%) and with the help of a viscoelostic substance in the latter part, in five hundred and nineteen patients (51.9%) (Table-3). Miosis was achieved by intraocular injection of Carbachol in those patients whose pupils remained unduly dilated by the end of the procedure. Subconjunctival injection of 20 mg each of Gentamicin and Depot Medrol was given. Antibiotic and steroid drops were instilled and a patch applied. Oral antibiotics and NSAIDs were given for five days and antibiotic and steroid drops were used for six to eight weeks. Postoperative examinations were done on the day after surgery, when usually the patients were discharged, one week later and then every other week till eight weeks after surgery. At each visit slit lamp examination and applanation tonometry and visual acuity measurements were performed. Betablockers and/or Carbonic anhydrase inhibitors were used for any transient rise in intraocular pressure.

Table 3: Methods of IOL insertion

Method	Number	Percentage
Air cushion	481	48.1%
Methyl cellulose	519	51.9%

Refraction was done eight weeks after surgery and appropriate glasses with a reading add were prescribed.

Majority of the patients (93.5%) received the posterior chamber (PC) IOLs, while the rest had the anterior chamber (AC) IOLs. (Table 4). Of those receiving the AC IOLs most were secondary procedures in that they had intracapsular cataract extractions in the past and either had the other eyes implanted with IOLs and were so satisfied with the results that instead of trying the contact lenses they opted to have IOLs implanted in their other eyes to

Table 4: Types of IOL used.

Type of IOL.	No. of cases	Percentage
Anterior chamber	61	6.4
Posterior chamber	886	93.5
Missing data	53	

Table 5: Method of IOL power determination

Method	No. of cases	Percentage
Biometry	660	66
Estimation	340	34

Table 6: IOL power calculation formula used.

Formula	No. of cases	Percentage
Binkhorst	410	64.4
Linear Regression	227	35.6

Table 7: Preoperative visual acuity of operated eye.

Snellen VA	No. of cases	Percentage
LP	160	18.8
HM	92	10.8
CF	371	43.5
3/60-6/36	143	16.8
6/24-6/18	66	7.7
6/12-6/6	20	2.3
Missing data	148	

Table 8: Preoperative visual acuity of fellow eye.

Snellen VA	No. of cases	Percentage
NLP	5	0.7
LP	29	3.9
HM	11	1.5
CF	168	22.9
3/60-6/36	143	19.5
6/24-6/18	151	20.6
6/12-6/6	227	30.9
Missing data	284	

achieve binocularity and stereopsis, or had a trial of contact lenses or aphakic spectacles and were not happy with them. A few were those who had ruptured posterior capsules with or without vitreous presentation. The planned PC IOL implantation as a secondary procedure was also done in a few aphakes who had an extracapsular cataract extraction in one eye previously and after an IOL implantation in the other eye desired an IOL implantation in the first eye also.

During the early part of the study the facilities for an accurate Biometric calculation i.e. Ultrasound A-Scan and the keratometer were not available. Hence the power of the IOL to be implanted was estimated, based on retinoscopy, whenever possible, or the previous refractive history and the glasses worn most recently. The power of PC IOL to be implanted was "Estimated" by the "+19.00± (1.25 x Refractive error)" Rule. Later in the study period when Biometry became available to us, the power of the IOL to be implanted was computed to achieve emmetropia postoperatively. The number of patients who received IOLs by the "Estimation" method was three hundred and forty (34%) and those receiving IOLs with powers "Calculated" to give them emmotropia postoperatively numbered six hundred and sixty (66%) (Table 5). Of the latter group, four hundred and ten (64.4%) had their IOL powers calculated by using Binkhorst formula and two hundred twenty seven (35.6%) by the Linear Regression formula (Table 6).

Preoperative visual acuity measurements of the operated and the fellow eye (Tables 7 and 8) showed that 73.1% of patients had LP to CF vision in the operated eye and 29% had similar vision in the fellow eye. Five patients had NLP in the fellow eye, the eye to be operated upon being the only useful eye. Twenty patients had 6/6 to 6/12 vision in the operated eye, these being the ones undergoing a secondary IOL implant. Two hundred twenty seven patients (30.9%) had 6/6 to 6/12 vision in their fellow eyes. This was an important group of patients, being potential candidates to become monocular aphakes unless an IOL implantation were done. These patients would not have achieved visual improvement of any significance unless they were fitted with a contact lens, or had an IOL implantation.

RESULTS

A study of the distribution of powers of IOLs implanted showed that four hundred and three patients (41.7%) received IOLs of +19.00 to + 20.50

Diopters. (Table 9) This is a case in point in favor of the suggestion for implanting a "Standard power" +19.00 or +20.00 IOL in the absence of refractive history and facilities for Biometry. Almost 3/4th of the patients (74.7%) received IOLs of +17.50 to +22.00 D.

Uncorrected visual acuity of 6/6 to 6/12 with IOL alone was achieved by one hundred and eleven patients out of six hundred and sixty six available for such measurement at one time or another (16.6%) (Table 10).

Table 9: Distribution of IOL powers.

IOL Power (D)	No. of cases	Percentage
10.0 to 15.0	83	8.6
15.5 to 17.0	99	10.2
17.5 to 18.5	158	16.4
19.0 to 19.5	175	18.1
20.0 to 20.5	228	23.6
21.0 to 22.0	160	16.6
22.5 to 27.0	63	6.5

Table 10: Uncorrected V.A. with IOL

Snellen VA	No. of cases	Percentage
LP	1	0.2
HM	1	0.2
CF	22	3.3
3/60-6/36	252	37.8
6/24-6/18	279	41.9
6/12-6/6	111	16.6

Refraction was done 2 months after surgery in four hundred and eighty three patients who completed the study. The best corrected visual acuity of 6/6 to 6/12 was achieved by four hundred and twenty eight of them (88.6%). Thirty eight patients (7.9%) achieved 6/18 to 6/24 vision and thirteen patients (2.7%) achieved 6/36 to 6/60 vision. Two patients had CF vision and another two achieved no improvement in their preoperative visual acuity (Table 11).

Eighty eight patients (16.6%) required no distant correction at all. Three hundred and fourteen patients (59.3%) required ± 2.00 D Spherical equivalent of over-refraction for best corrected visual acuity. The Mean refractive correction prescribed was ± 1.00 D spherical equivalent (Table 12).

Table 11: Corrected V.A. with IOL.

Snellen VA	No. of cases	Percentage
NI	2	0.4
CF	2	0.4
3/60-6/36	13	2.7
6/24-6/18	38	7.9
6/12-6/6	428	88.6

Table 12: Refractive Correction.

Spherical equivalent (Diopters)	No. of cases	Percentage
+3.50 to +5.00	6	1.1
+2.25 to +3.00	18	3.4
+0.25 to +2.00	108	20.4
0.00	88	16.6
-0.25 to -2.00	206	38.9
-2.25 to -4.00	89	16.8
-4.25 to -6.25	15	2.8

Mean refractive correction = ±1.00 dpts

Posterior segment disease which was not detectable prior to cataract extraction was responsible for poor visual results in ten patients. These included four patients with chorioretinal atrophy, two each with senile macular degeneration and optic atrophy, and one each with macular gliosis and papillomacular bundle hemorrhage (Table 13).

Table 13: Posterior segment disease responsible for poor visual results.

Disease	No. of cases	Percentage
Chorioretinal atrophy	4	0.4
Senile macular degeneration	2	0.2
Optic atrophy	2	0.2
Macular gliosis	1	0.1
Papillomacular bundle hemorrhage	1	0.1

Twelve patients (1.2%) had thickening of posterior capsule. They were referred for Yag laser capsulotomy to a sister Institute (Table 14).

Six patients (0.6%) had bullous keratopathy. They are awaiting keratoplasty and have good visual potential since their posterior segments are free of

disease. Six patients (0.6%) had cystoid macular edema. Three of these have resolved on treatment with steroids while the rest have not, so far. Five patients (0.5%) had an early rise in intraocular pressure. These resolved on short courses of Betablockers with or without Carbonic anhydrase inhibitors. Four patients (0.4%) had developed pseudomembranes in their pupils. These resolved on intensive topical steroid therapy within two to three days. Three patients (0.3%) had retinal detachment and have been successfully re-attached with good visual outcome. Two eyes (0.2%) were lost from endophthalmitis. Another two patients developed severe panophthalmitis which resolved completely with intensive topical, subconjunctival and systemic steroid therapy. One patient had a lens dislocation after a rather large Yag laser capsulotomy done at another Institute. He required a McKennel suture to reposition it.

Table 14: Post-Operative Complications.

Complication	No. of cases	Percentage
Thickened posterior capsule	12	1.2
Bullous Keratopathy	6	0.6
Cystoid macular edema	6	0.6
Early rise in IOP	5	0.5
Pseudomembrane in pupil	4	0.4
Retinal detachment	3	0.3
Endophthalmitis	2	0.2
Severe panuveitis	2	0.2
Lens dislocation	1	0.1

DISCUSSION

Intraocular lens implantation in patients undergoing cataract extraction is the most widely accepted method of correcting aphakia at present. The major contra-indications of yester years including corneal disease, dystrophy or low endothalial cell counts, no longer poses any special problems when donor cornea is available. A triple procedure consisting of cataract extraction along with keratoplasty and IOL implantation is now standard[13-21]. Similarly, uncontrolled glaucoma patients with cataracts have also been successfully handled with another type of triple procedure: trabeculectomy, cataract extraction and IOL implantation[22-33]. Diabetic patients who have not advanced to a proliferative retinopathy stage can also have cataract extraction with IOL implantation when their visual handicap is mostly from the advanced cataract[34-35]. Laser photocoagulation and even vitrectomy have been successfully performed through the IOLs.

In the present series we had excluded patients with corneal diseases sufficiently advanced as to require keratoplasty along with the cataract extraction, simply because we did not have access to donor corneal material. Patients with only borderline healthy corneas that could potentially be decompensated were also excluded. Despite these preoperative considerations, six patients (0.6%) ended up with pseudophakic bullous keratopathy. This number could have been reduced or eliminated had we had the facility to count endothelial cells preoperatively. However, these eyes are still potentially salvageable if and when they can have keratoplasty. The incidence of pseudophakic bullous keratopathy in various studies has been described as 0.1% to 1.0%.

Patients with pre-existing glaucoma in our series had all been controlled medically. There were, thus, no patients requiring trabeculectomy along with the cataract extraction and IOL implantation.

Diabetics and hypertensives were also controlled medically preoperatively. None of these have required any laser coagulation or vitrectomy so far.

The incidence of thickening of posterior capsule several months to years after surgery has been reported in different studies to vary between 2 to 20%. We had an incidence of 1.2% of such opacification requiring Yag laser capsulotomy.

Cystoid macular edema has been reported to occur in 3-6% of patients undergoing cataract extraction. The incidence is lower in extracapsular cataract extraction than after an intracapsular one. Our incidence was 0.6%, out of which half the patients recovered after systemic and topical steroid therapy, giving us the final incidence of 0.3%.

Transient early rise in intraocular pressure and fibrillar pseudomembrane in the pupil are well-recognized minor complications that were easily handled without any sequelae in a few of our patients (0.5% and 0.4% respectively).

Retinal detachment following aphakia has been reported to occur variously from 2-5%, with the prevalence rising to 10% if the vitreous is lost at the time of cataract extraction[16]. We had three patients that developed retinal detachment. One had it

following a rather large Yag Laser Capulotomy. Another patient developed a retinal detachment following extracapsular cataract extraction where a rent in the posterior capsule had been detected at the time of surgery but considered insignificant and thus a PC IOL had been inserted. Slight amount of vitreous was visible in the pupillary plane the day after surgery. The third patient had a rhegmatogenous retinal detachment several months after surgery. All these have been successfully reattached.

Panuveitis in two patients resolved after intensive steroid therapy. The two patients that ended up with enucleation had developed severe endophthalmitis, one with Pseudomonas and the other with Staph. epidermidis. The eyes could not be salvaged despite intensive topical, subconjunctival, systemic and intraviteral antibiotics.

Our overall results were very encouraging and are comparable to international standards (Table 15).

Table 15: Comparison of Results and Complications.

Results/ Complications	Yang & Kline	Surgidev Corp	Present study
6/12 or better VA	91.6%	92.75%	88.6%
Secondary posterior capsulotomies	2.3%		1.2%
Corneal decompensation	0.1%	0.90%	0.6%
Cystoid macular edema	3.2%	6.20%	0.6%
Pseudomembrane in pupil	1.3%	0.20%	0.4%
Retinal detachment	0.1%	1.00%	0.3%
Endophthalmitis	0.1%	0.20%	0.2%

We achieved best corrected visual acuity of 6/12 or better in 88.6%, which compares well with Yang and Kline's series of 1000 P.C. IOLs (91.6%)[47] and Surgidev Corporation's series of 583 PC IOLs (92.75%)[48]. Secondary capsulotomies for thickened posterior capsules were required in 1.2% of our cases Vs 2.3% in Yang and Kline's series. Corneal decompensation occurred in 0.6% in our series, in 0.1% in Yang and Kline's series and in 0.9% in Surgidev Corporation series. The incidence of cystoid macular edema was the lowest in our series (0.6%). The other two series showed an incidence of 3.2% and 6.2% respectively. So was the incidence of retinal detachment, ours being 0.3% and in the other two series, 0.4% and 1.00% respectively. We had pseudomembranes in pupil in 0.4% of the patients, whereas Yang and Kline reported these in 1.3% and Surgidev Corporation in 0.2%. Our incidence of endophthalmitis was 0.2%. That of Yang and Kline being 0.1% and of Surgidev Corporation 0.2%.

The study indicates that cataract extraction with IOL implants can achieve highly gratifying results even in the developing countries with limited resources.

REFERENCES

1. **Stark WJ, Leske MC, Worth DM, et al.** Trends in cataract surgery and intraocular lenses in the United States. *Am J Ophthalmol 1983;* **96**: 304.
2. **Beckett R, Rosen ES.** Results of 1988 Survey on Cataract Surgery and IOL Implantation in the United Kingdom. *Eur J Implant Refract Surgery 1989;* **1**: 231-5.
3. **Khan AJ.** Intraocular lenses in Pakistan *8th Afro-Asian Cong Proc 1984;* 181-186.
4. **Jahangir S, Kadri WM.** Extracapsular cataract extraction with intraocular lens implantation in Pakistanis. *Pak J Ophthalmol 1988;* **4**: 80-82.
5. **Durrani J.** Intraocular lens implantation: A review of 100 cases at Shaikh Zayed Hospital, Lahore. *Pak J Ophthalmol 1989;* **1(1)**: 1-11.
6. **Binkhorst CD.** Twenty years experience with pseudophakia. Some thoughts on the fixation of intraocular lenses. Eye Group, Zealand, Netherlands. Presented at the First International Course in Pseudophakia, Netherlands June 1974.
7. **Fyodorov SN.** Long term results of 2000 operations of implantation of Fyodorov intraocular lenses performed in the Soviet Union. *Am Intraocular Implant Soc J 1977;* **3(2)**: 101.
8. **Pearce JL.** Sixteen months experience with 140 posterior chamber intraocular acrylic lenses. *Br J Ophthalmol 1977;* **61**: 310.
9. **Worst JGF.** The artificial lens experience with 2000 lens implantations. *Am Intraocular Implant Soc J 1977;* **3**: 14-9.
10. **Kratz RP, Davidson B, Clovarde DM.** The Shearing Intraocular lens: A report of 1000 cases. *Am J Ophthalmol 1983;* **96**: 304.
11. **Ogle KN, Burian HM, Bannon RE.** On the correction of unilateral aphakia with contact lenses. *Arch Ophthalmol 1958;* **59**: 639-52.
12. **Stark WJ, Kracher GP, Cowan CL, et al.** Extended wear contact lenses and IOLs for aphakic correction. *Am J Ophthalmol 1979;* **88**: 535.
13. **Taylor DM.** Keratoplasty and intraocular lenses. *Ophthalmic Surg 1976;* **7**: 31.
14. **Lee JR, Dohlman CH.** Intraocular lens implantation in combination with keratoplasty. *Ann Ophthalmol 1977;* **9**: 513.
15. **Aquavella JV, Shaw EL, Rao GN.** Intraocular lens implantation combined with penetrating keratoplasty. *Ophthalmic Surg 1977;* **8**: 113.
16. **Hunkeler JD, Hyde LL.** The triple procedure: Combined penetrating Keratoplasty, cataract extraction and lens implantation. *Am Intraocular Implant Soc J 1977;* **5**: 222.
17. **Bruner WE, Stark WJ, Maumenee AE.** Combined keratoplasty, cataract extraction, and intraocular lens implantation. Experience at the Wilmer Institute. *Ophthalmic Surg 1981;* **12**: 657.

18. **Lindstrom RL, Harris WS, Doughman DJ.** Combined penetrating keratoplasty, extracapsular cataract extraction, and posterior chamber lens implantation. *Am Intraocular Implant Soc J 1981;* **7**: 130.
19. **Hunkeler JD, Hyde LL.** The triple procedure. Combined penetrationg keratoplasty, extracapsular cataract extraction and lens implantation. An expanded experience. *Am Intraocular Implant Soc J 1983;* **9**: 20.
20. **Taylor DM, Stern AL, McDonald P.** The triple procedure. Two to 10 year follow-up. *Trans Am Ophthalmic Soc 1986;* **84**: 221.
21. **Meyer RF, Musch DC.** Assessment of success and complications of triple procedure surgery. *Am J Ophthalmol 1987;* **104**: 233-40.
22. **Pfoff DS.** Simultaneous extracapsular cataract extraction, intraocular lens implantation, and posterior lip sclerectomy filtering procedure in glaucomatous patients. *CLAOJ 1984;* **10**: 143-47.
23. **Jay JL.** Extracapsular lens extraction and posterior chamber intraocular lens insertion combined with trabeculectomy. *Br J Ophthalmol 1985;* **69**: 487-90.
24. **Savage JA, Thomas JV, Belcher CD III, Simmons RJ.** Extracapsular cataract extraction and posterior chamber intraocular lens implantation in glaucomatous eye. *Ophthalmology 1985;* **92**: 1506-16.
25. **Ohanesian RV, Kim EW.** A prospective study of combined extracapsular cataract extraction, posterior chamber lens implantation and trabeculectomy. *Am Intraocular Implant Soc J 1985;* **2**: 142-45.
26. **Percival SPB.** Glaucoma triple procedure of extracapsular cataract extraction, posterior chamber lens implantation, and trabeculectomy. *Br J Ophthalmol 1985;* **69**: 99-102.
27. **McGuigan LJB, Gottsch J, Stark WJ, et al.** Extracapsular cataract extraction and posterior chamber lens implantation in eyes with preexisting glaucoma. *Arch Ophthalmol 1986;* **104**: 1301-8.
28. **Handa J, Henry JC, Kruppin T, Keates E.** Extracapsular cataract extraction with posterior chamber lens implantation in patients with glaucoma. *Arch Ophthalmol 1987;* **105**: 765-69.
29. **Simmons ST, Laitoff D, Nichols DA, et al.** Extracapsular cataract extraction and posterior chamber intraocular lens implantation combined with trabeculectomy in patients with glaucoma. *Am J Ophthalmol 1987;* **104**: 465-70.
30. **Skorpik C, Paroussis P, Gnad HD, Menapace R.** Trabeculectomy and intraocular lens implantation: a combined procedure. *J Cataract Refract Surg 1987;* **13**: 39-42.
31. **McCartney DL, Memmen JE, Stark WJ, et al.** The efficacy and safety of combined trabeculectomy, cataract extraction and intraocular lens implantation. *Ophthalmology 1988;* **95**: 754-63.
32. **Kriger SH, Tuberville A, Hamilton RS.** A review of extracapsular cataract extraction and intraocular lens implantation combined with trabeculectomy. *Ann Ophthalmol 1989;* **21**: 266-8.
33. **Johnson D.** Extracapsular extraction, intraocular lens implantation, and trabeculectomy. The combined procedure. *Int Ophthalmol Cl 1990;* **30(3)**: 209-14.
34. **Clayman HM, Jaffe NS, Light DS.** Lens implantation and diabetes mellitus. *Am J Ophthalmol 1979;* **88**: 990-2.
35. **Patz A.** Photocoagulation of retinal, vascular and macular diseases through intraocular lenses. *Ophthalmology 1981;* **88**: 398-406.
36. **Jaffe NS.** The way things were and are: Changing indications for intraocular lens implantation. *Ophthalmology 1983;* **90**: 318-20.
37. **Straatsma BR, Pettit TH, Wheeler N, et al.** Diabetes mellitus and intraocular lens implantation. *Ophthalmology 1983;* **90**: 336.
38. **Thompson SM, Kritzinger EE, Roper-Hall MJ.** Should diabetes be a contraindication for an intraocular lens? *Trans Ophthalmol Soc. UK 1983;* **103**: 115-7.
39. **Sebestyen JG, Wafai MZ.** Experience with intraocular implants in patients with diabetes. *Am J Ophthalmol 1983;* **96**: 94-6.
40. **Alper JJ.** Cataract extraction and diabetic retinopathy. *J Am Intraocular Implant Soc 1984;* **10**: 433-7.
41. **Kennedy JE, Lim ASM, Ang BC.** Posterior chamber intraocular lenses in diabetics. *Aust J Ophthalmol 1984;* **12**: 253-6.
42. **Tasman W.** Are there any retinal contraindications to cataract extraction and posterior chamber lens implants? *Arch Ophthalmol 1986;* **104**: 1767-8.
43. **Fung WE.** Phacoemulsification and implantation of posterior chamber intraocular lens in eyes with quiescent Proliferative diabetic retinopathy. *Graefes Arch Clin Exp Ophthalmol 1987;* **225**: 251-3.
44. **Cheng H, Franklin SL.** Treatment of cataract in diabetics with and without retinopathy. *Eye 1988;* **2**: 607-14.
45. **Cunliffe LA, et al.** Extracapsular cataract surgery with lens implantation in diabetics with and without proliferative retinopathy. *Br J Ophthalmol 1991;* **75(1)**: 9-12.
46. **Hilton George F, McLeam Edward B, Nortor Edward WD.** Editors. Retinal determent manual of American Academy of Ophthalmology, 1981. Page 15.
47. **Yang HK and Kline OR Jr.** Posterior chamber lens implant surgery. Raven press, New York, 1983.
48. **Surgidev Corporation, Goleta, California:** Core study and clinical trials of J-loop posterior chamber Intraocular lenses 1978-79.

The Authors:

Jehangir Durrani,
Professor,
Depatment of Ophthalmology,
Shaikh Zayed Postgraduate Medical Institute,
Lahore.

Hamid Mahmood
Assistant Professor,
Depatment of Ophthalmology,
Shaikh Zayed Postgraduate Medical Institute,
Lahore.

Address for Correspondence:

Jehangir Durrani,
Professor,
Depatment of Ophthalmology,
Shaikh Zayed Postgraduate Medical Institute,
Lahore.