MEDICAL CHANNEL

Original Article

VISUAL OUTCOME, PHACOEMULSIFICATION VERSUS EXTRACAPSULAR CATARACT EXTRACTION

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PURPOSE:

Objective: To determine the results of visual outcome in Phacoemulsification versus Extracapsular cataract extraction.
Material and Method: Patients with cataract and without any other ocular morbidity and well dilated pupil (7mm) were included in the study. Patients having corneal opacity, glaucoma, previous ocular surgery were excluded from the surgery. After preoperative evaluation and preparation patients were randomly selected for cataract surgery. Postoperatively visual acuity was followed at first week and than fortnightly intervals for a period of three months. Pearson's correlation coefficients were calculated to assess the associations between visual results of Phacoemulsification versus Extracapsular Cataract surgery. P value lower than 0.05 was defined as statistically significant.
Results: Two hundred and fifty eyes of 240 patients with cataract were operated for cataract surgery out of which 125 eyes were operated with Phacoemulsification and 125 eyes with Extracapsular cataract surgery. The postoperative unaided visual acuity was 6/12 or better in 72% of Phacoemulsification cases while 18% in ECCE cases one week after surgery. The post operative unaided visual acuity was 6/12 or better in 80% of Phacoemusification and 54 % in ECCE 3 months after surgery.
Conclusion: Phacoemulsification yields better and rapid visual outcome as compared to Conventional Extracapsular cataract extraction surgery

Key Words: Visual acuity, Phacoemulsification, ECCE

Over the years cataract surgery has become more refined due to evolution of newer techniques and better instrumentation.
Patient's and Surgeon's need for better visual results, early visual rehabilitation, and lower complication rate, has resulted in improved procedures .The trend is now towards small incision phacoemulsification cataract surgery.
The small incision phacoemulsification has distinct advantage of early and better visual rehabilitation and rapid return to normal life[1]. This approach permits the use of capsulorhexis and minimizes the risk of endothelial cell trauma[2] . Small incision cataract surgery gives more wound stability, leads to early healing and results in minimal astigmatism[3].
In this century the technique of phacoemulsification in which the cataract is emulsified (liquified) with ultrasonic energy through 3.0 or 3.2 mm incision with implantation of small diameter lens has become the preferred choice[4].
Charles Kelmen introduced phacoemulsification as a new technique of cataract extraction in 1967. In this study we examined the visual results of phacoemulsification and compared them with the control group i.e. standard extracapsular cataract extraction.

MATERIALS AND METHODS

This multicentered cross sectional comparative study was conducted at Department of Ophthalmology Peoples University of Medical and Health sciences Hospital Nawabshah

and CMC Hospital Larkana between Jan 2008 and Jan 2009. Two hundred and fifty eyes of 240 patients with cataract were operated for cataract surgery out of which 125 eyes were operated with Phacoemulsification and 125 eyes with Extracapsular cataract surgery. All participants were recruited from out patient department of Ophthalmology PMC hospital (200 eyes) and CMC hospital(50 eyes). Patients having Cataract with nuclear sclerosis grade 1 to 4 having eyes with accurate perception and projection of light, clear corneas, normal intraocular pressure and dilatable pupil(more than 7mm) were included in the study Patients with subluxated or dislocated lenses, unhealthy vitreous and retina, having history of other previous surgery like retinal detachment(RD)surgery, trabeculectomy etc were excluded from the study .

Patients after preoperative evaluation and preparation were operated by a single surgeon at both centres.

Postoperatively the patient data was saved for regular follow ups at first week postoperative and than fortnightly for three months. Visual acuity with best correction was the mainstay of the record to be kept.

TABLE 1

SEX DISTRIBUTION FOR PHACOEMULSIFICATION

Sex	No of Eyes	Percentage
Male	85	68%
Female	40	32 %
Total	125	100%

TABLE 2

PREOPERATIVE VISUAL ACUITY (PHACO)

VA	No. of Eyes	Percentage
HM-FC	25	20%
2/60 - 6/60	75	60%
6/36 - 6/24	15	12%
6/18-6/9	10	8%
Total	125	100%

TABLE 3

POSTOPERATIVE VISUAL ACUITY AT FIRST WEEK IN PHACOEMULSIFICATION

Visual Acuity	No of Eyes	Percentage
6/6 - 6/12	90	72%
6/18 - 6/24	23	18.4 %
6/36 - 6/60	10	8%
< 6/60	2	1.6%
	125	100%

TABLE 7

POSTOPERATIVE VISUAL ACUITY AT FIRST WEEK IN ECCE

Visual Acuity	No of Patients	Percentage
6/16-6/12	22	17.6%
6/18-6/24	62	49.6%
6/36 - 6/60	24	19.2%
< 6/60	17	13.6%
Total	125	100%

TABLE 4

POSTOPERA TIVE VISUAL A CUITY A T 3 MONTHS IN PHA COEMULSIFICA TION

VA	No. of eyes	Percentage
6/6 - 6/12	100	80%
6/18 - 6/24	5	4%
6/36 - 6/60	3	2.4%
< 6/60	—	—
No follow	17	13.6%
Total	125	100%

TABLE 5

SEX DISTRIBUTION FOR ECCE

Sex	No. of Eyes	Percentage
Male	80	64%
Female	45	36%
Total	125	100%

TABLE 6

PREOPERATIVE VISUAL ACUITY (ECCE)

Visual Acuity	No of eyes	Percentage
LP-HM	48	38.4%
FC - 1/60	45	36%
3/60 - 6/60	30	24%
6/36 - 6/18	2	1.6%
Total	125	100%

TABLE 8

POSTOPERA TIVE VISUAL A CUITY AT 3 MONTHS IN ECCE

Visual Acuity	No of Patients	Percentage
6/6 - 6/12	68	54.4%
6/18 - 6/24	30	24%
6/36 - 6/60	10	8%
< 6/6	2	1.6%
No followup	15	12%
Total	125	100%

RESULTS

125 eyes of 122 patients were included in this study for phacoemulsification with silicone foldable and PMMA IOL 5.1, 5.0, 5.5 optic. All these patients underwent phacoemulsification with clear corneal incision except for a few patients in which scleral tunnel was made.

The control group consisted of 125 eyes of 118 patients with senile cataracts operated in the same period with standard extracapsular cataract extraction with IOL implantation

The postoperative unaided visual acuity was 6/12 or better in 72% of Phacoemulsification cases while 18% in ECCE cases one week after surgery. The post operative unaided visual acuity was 6/12 or better in 80% of Phacoemusification and 54 % in ECCE 3 months after surgery.

DISCUSSION

Extracapsular cataract extraction whether by nuclear expression or phacoemulsification is the preferred method of routine cataract surgery. Selection of the technique for nucleus removal depends on the instruments available and the surgeon's level of experience with either technique.

In this study we examined the visual and refractive results of phacoemulsification and compared them with the control group i.e standard extracapsular cataract extraction.

The basic reason of phacoemulsification regarding development and popularity is the 3.0 or 3.2 mm incision used with this technique that allows quicker closure, less risk of wound leakage, minimization of wound disruption, less chance of iris prolapse and flat anterior chamber, as well as rapid wound healing, faster visual recovery and reduced postoperative astigmatism compared with large incision used in the standard extracapsular cataract extraction[5].

Phacoemulsification allows the surgeon to maintain the anterior chamber and have more control over the entire procedure. It is a closed chamber technique in which minimum disturbance of ocular tissues takes place compared with other procedures for cataract extraction[5].

The use of viscoelastics helps to protect the endothelium from the turbulence of irrigating fluid produced by phacoemulsification[6]. Viscoelastics are helpful in performing successful capsulorhexis. A good capsulorhexis has a key role for a successful & satisfactory phacoemulsification procedure[7] .Phacoemulsification can be carried out in almost any case of cataract. However, for beginners grade 2 & 3 nuclear sclerosis are ideal[8].

Regarding the postoperative visual recovery in phacoemulsification our study shows that unaided 6/12 or better visual acuity was achieved in 72 % of cases on the 1st day. In comparison other studies e.g. Whitefield's study showed 76 % of cases with 6/12 or better vision [9] 80 % had 6/12 or better visual acuity at 3 months in our study, while to Cotlier et al had 6/6 in 83.3%, 58 Stark et al had 85 % with 6/6 and Chan had 94 % with 6/12 or better[10] .

While ECCE in our study shows that unaided 6/12 or better vision was achieved in 18 % of cases at one week and 54 % at 3 months, as compared with results of visual recovery from other investigators such as Durrani, (Shaikh Zaid Hospital, Lahore) who showed unaided 6/12 vision in 37.6 % at 8 weeks postoperatively[11]

CONCLUSION

Phacoemulsification is the procedure of choice for cataract extraction because of early and better visual rehabilitation as compared to conventional extracapsular cataract extraction.

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