Original Article

Visual Outcome of PRK and Lasik: Five Year Followup

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Purpose: To evaluate the visual outcome of PRK and Lasik in age and refractive error matched eyes.

Material and Methods: This retrospective study was conducted on the fifth year follow up of the refractive surgery patients who have under gone photorefractive keratectomy (PRK) and laser in situ keratomileusis (Lasik) procedures for moderate degree of myopia. One surgeon operated all patients by using Visx 20/20B excimer laser system. Age and refractive error matched patients were divided in two groups. Preoperative and five years postoperative uncorrected, best corrected visual acuity and manifest refractions were recorded to compare the out comes of both the procedures.

Results: Forty eyes of 27 patients were found matched regarding age and refractive error. In PRK group among 19 patients, 12 (63.2) were male and 7 (36.8) were females whereas in Lasik group, males were equal to female patients, four each. Uncorrected postoperative visual acuity was comparable in both groups. Patients in both groups were happy regarding their visual outcome.

Conclusion: PRK is as effective as Lasik for the correction of moderate degree of myopia regarding visual out come and corneal health and is cost effective.

Majority of the spectacle or contact lens wearers desire to see clearly without glasses or contact lenses. With the availability of excimer laser for the correction of myopic refractive errors[1] this dream seems to come true. Kerato refractive procedures are well established and have become more acceptable in the recent years among the people suffering from refractive errors. Photorefractive keratectomy (PRK) and laser in situ keratomileusis (Lasik) are among the commonly performed procedures. PRK is a simpler and easy to learn technique whereas Lasik is more complicated and has a steep learning curve. It involves creation of corneal flap, application of laser and repositioning of flap exactly back to its place. Use of micro keratome makes this procedure more expensive. Cost of the procedure is the main concern of most of the patients in third world countries.

The purpose of this study was to evaluate the visual outcome of both PRK and Lasik in age and refractive error matched eyes.

MATERIAL AND METHOD

Retrospective analysis of the patient's records was done who attended the clinic for follow up. These patients had refractive surgery procedure (PRK or Lasik) from June 1997 to June 1998 and have completed five years of follow up.

Patients were divided in two groups (PRK patients group A and Lasik patients group B) and only age and

refractive error matched patients were included in the study. Selected age range was 20 to 25 years and mean refractive error between -6D and -9D were included in the study.

One surgeon (author) operated all patients by using the same excimer laser machine (Visx 20/20 B). There were no operative and postoperative complications recorded in the notes regarding the procedure. Data collected was preoperative manifest refraction and best corrected visual acuity and postoperative uncorrected visual acuity, manifest refraction and best corrected visual acuity.

RESULTS

In group A, 104 eyes of 52 patients whereas in group B, 32 eyes of 16 patients completed five year follow-up. In group A 30 eyes and in group B 10 eyes (of 27 patients) met the inclusion criteria of age and preoperative refraction. Both eyes of 11 patients in group A and of 4 in group B met the inclusion criteria.(Table 1)

Table 1: Total patients 27, Eyes 40

	Group A	**Group B**
	PRK n(%)	**Lasik n(%)**
Patients	19 (70.3)	8 (29.6)
Eyes	30 (75)	10 (24)
Age(mean)	23.6 years	23.4 years
Sex		
Male	12 (63.2)	4 (50)
Female	7 (36.8)	4 (50)

Table 2: Visual acuity

	Preoperatively		**Postoperatively**	
	MUCVA	**MBCVA**	**MUCVA**	**MBCVA**
PRK	0.1	0.85	0.82	0.9
Lasik	0.1	0.9	0.84	0.9

MUCVA=Mean uncorrected visual acuity
MBCVA= Mean best corrected visual acuity

Preoperatively in group A, mean manifest spherical equivalent was -7.16D (SD) ± 0.64 D (range -6 to -9D), mean uncorrected Snellen's visual acuity was 0.1 and mean best corrected visual acuity was 0.85 (range 0.8 to 1.0). Whereas in group B, mean manifest spherical equivalent was -8.06 D (SD) ± 0.61 D (range -6.to -9D), mean uncorrected visual acuity was 0.1 and mean best corrected Snellen's visual acuity was 0.9 (range 0.6 to 1.0).(Table 2,3).

Postoperatively in group A, mean uncorrected Snellen's visual acuity was 0.82 (range 0.8 to 1.0), mean manifest spherical equivalent was -0.64 (SD) ± 0.54D (range +0.63 to -1.63D) and mean best corrected Snellen's visual acuity was 0.9 (range 0.8 to 1.0). Whereas in group B, mean uncorrected Snellen's visual acuity was 0.84 (range 0.8 to 1.0), mean manifest spherical equivalent was -0.45 (SD) ± 0.7D (range +0.63 to -1.88D) and mean best corrected Snellen's visual acuity was 0.9 (range 0.8 to 1.0).(Table 2,3)

Table 3: Refractive status

	Preoperatively	**Postoperatively**
	MSE (SD)	MSE (SD)
PRK	-7.16 (±0.64)	-0.64 (±0.54)
Lasik	-8.06 (±0.61)	-0.45 (±0.7)

MSC= Mean spherical equivalent
SD= Standard deviation

All corneas were clear. No patient had any loss in best corrected visual acuity. Patients had no complaint regarding vision except 2 in group A and one in group B reported gritty sensations in eyes occasionally. All patients were happy regarding visual outcome.

DISCUSSION

The visual out come of both PRK and Lasik is comparable in the given range of refractive error. All patients in both groups achieved satisfactory level of uncorrected vision. Health of the cornea after five years appears satisfactory in both groups. The patients reported no disturbances of night vision.

Stability of refraction in both groups is found not statistically different after five years post excimer laser treatment. Saragoussi D and Saragoussi JJ[2] reported

similar kinds of results, though they reported occasional night vision symptoms but 97.8% of the patients were satisfied with their vision.

Efficacy out comes were generally similar in the PRK and Lasik groups and both achieved good objective and subjective results after treatment which was also reported by Neeracher B[3].

By careful selection of patients desirable results can be achieved by photorefractive keratectomy in moderate degree of myopia with preservation of corneal health[4].

CONCLUSION

For moderate degree of myopia PRK is as effective as Lasik in low economic setups where patients cannot afford the cost of expensive procedures but care must be taken to treat higher degrees of myopia by photorefractive keratectomy.

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As chronic simple glaucoma is nonsymptomatic disease there is a tendency to go slack on recommended medical regimen, hence the adherence and persistensce with medications should be stressed.

Whatever vision is lost in glaucoma is permanent and irreversible "Drugs do not work for people who don't take them"

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