

Functional Outcome and Patient Satisfaction after LASIK for Correction of Myopia: A Clinical Study

Ali Abdullah Taqi^{1*}, Diar Hadi Saeed²

¹MB.Ch.B/D.O/CABM(Ophth), Head of Ophthalmology Unit, University of Sulaimani, Kurdistan, Iraq.

²MB.Ch.B/D.O, Ophthalmologist, Aso eye hospital, Ministry of health, Kurdistan, Iraq.

ABSTRACT

Background: Myopia included one of the major threats of vision in the world. It is said to be responsible for more than 70% of the complications of refractile based errors. A new option was introduced in the management of myopia, which is laser in-situ keratomileusis (LASIK). Hence, we evaluated the subjective patient satisfaction and visual improvement after LASIK for the correction of myopia.

Materials & Methods: The present clinical study included 70 cases in SOMA center in Sulaimani during the period from January 2008 to August 2008. Each case was interviewed individually using a specially designed questionnaire which contained systemic and ocular histories with the result of examination. Detailed ocular examination was carried out on all the cases and for both eyes separately. Both anterior and posterior segments were examined with slit-lamp. The posterior segment examination was done after pupillary dilatation with tropicamide eye drop 0.5% and using fundus lens 90 Diopters. The operation is performed with the patient awake and mobile; the patient typically is given anesthetic eye drops. The examination was done after the LASIK technique immediately, after 1 day, after 1 week and after 1 month.

Results: Out of total 70 patients, 36 were males and 34 were females. The mean age of the patients was 29 years. Mean pre-surgical spherical equivalent and post-surgical spherical equivalent were maximum in group of -0.25 to -3.00. 100% satisfaction after 1 months follow-up.

Conclusion: LASIK technique gives a good result regarding the early visual outcome by achieving the BCVA post-laser.

Key Words: LASIK, Myopia.

*Correspondence to:

Dr Ali Abdullah Taqi,
Head of Ophthalmology Unit,
University of Sulaimani, Kurdistan, Iraq.

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INTRODUCTION

One of the major threats for vision health across the world is Myopia. Out of all known refractive-error-related complications, it is considered to be responsible for more than 70% of the complications.^{1, 2} There is higher risk for occurrence of lacquer cracks, retinal detachment, chorioretinal atrophy, glaucoma and other ocular abnormalities in patients with myopia.^{3, 4} Due to numerous problems arising because of traditional treatment protocols, a new option was introduced in the management of myopia, which is laser in-situ keratomileusis (LASIK).⁵ Hence, we evaluated the subjective patient satisfaction and visual improvement after LASIK for the correction of myopia.

MATERIALS & METHODS

The present clinical study included 70 cases in SOMA center in Sulaimani during the period from January 2008 to August 2008. Each case was interviewed individually using a specially designed questionnaire which contained systemic and ocular histories with the result of examination. The following information was asked in each case. The age, gender, occupation, residence (inside or outside) Sulaimania, chief complain, history of present illness and associated symptoms, all systemic reviews, past medical histories, drug history (systemic and topical), social history.

Detailed ocular examination was carried out on all the cases and for both eyes separately. Both anterior and posterior segments were examined with slit-lamp. The posterior segment examination was done after pupillary dilatation with tropicamide eye drop 0.5% and using fundus lens 90 Diopters. Visual acuity was carried out with visual acuity E chart, the measurement was taken with and without the patient's own glasses. Keratometry, pachymetry and corneal topography also were done. Patients wearing soft contact lenses typically are instructed to stop wearing them 2 weeks before keratometry and hard lenses for 1 week for each year of wear. The operation is performed with the patient awake and mobile; the patient typically is given anesthetic eye drops. Patients are usually given a course of antibiotic, anti-inflammatory and artificial tear eye drops. These are continued in the weeks following surgery. Patients are also given a darkened pair shields to protect their eyes from bright lights and protective goggles to prevent rubbing of the eyes when asleep and to reduce dry eyes. Each case was examined postoperatively. The anterior and posterior segments were examined with slit-lamp, checking visual acuity with visual acuity E chart. The examination was done after the LASIK technique immediately, after 1 day, after 1 week and after 1 month.

Table 1: Demographic details of the patients who underwent LASIK for myopia

Parameter		N (Mean)
Gender	Male	36
	Female	34
Age (years)		29
Follow-up time		1 months
Refraction (dioptr)	Sphere	-3.8
	Astigmatism	0.8
	Spherical equivalent	-3.9

Table 2: Frequency of changes shown in BSCVA of the better eye.

BSCVA lines	Post-surgical UCVA versus pre-surgical BSCVA (Percentage of eyes)	Post-surgical BSCVA versus pre-surgical BSCVA (Percentage of eyes)
Gain 2 lines	4	3
Gain 1 line	11	5
Maintain	75	91
Lost 1 line	3	1
Lost 2 line	4	0
Lost 3 line	1	0
Lost 4 line	2	0

BSCVA: Best spectacle-corrected visual acuity, UCVA: Uncorrected visual acuity

Table 3: Distribution (%) of pre-surgical versus post-surgical mean manifest refractive index of the better eye

MRSE	Mean	
	Pre-surgical SE	Post-surgical SE
0.00	2	66
-0.25 to -3.00 D	44	34
-3.25 to -6.00 D	44	0
-6.25 to -8.00 D	10	0

SE: Spherical equivalent, MRSE: Manifest refraction spherical equivalent

RESULTS

Table 1 highlights the demographic details of the patients who underwent LASIK for the treatment of myopia. Out of total 70 patients, 36 were males and 34 were females. The mean age of the patients was 29 years.

Table 2 shows the frequency of changes shown in BSCVA (Best spectacle-corrected visual acuity) of the better eye.

Table 3 shows the distribution (percentage) of pre-surgical versus post-surgical mean manifest refractive index of the better eye. Mean pre-surgical spherical equivalent and post-surgical spherical equivalent were maximum in group of -0.25 to -3.00. Graph 1 shows distribution of patients according to residential information. Fig 1 highlights the distribution of refractive errors among the study population.

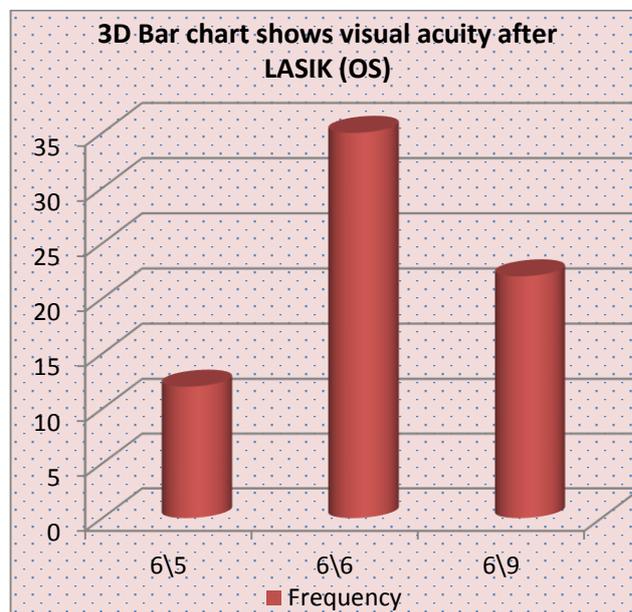
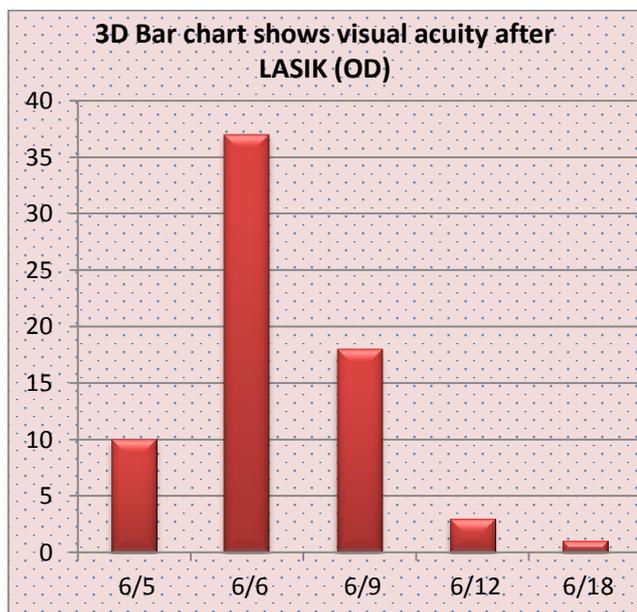
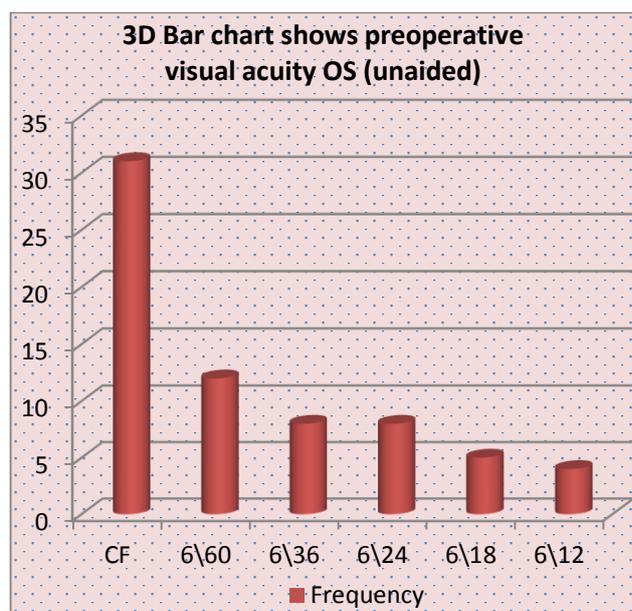
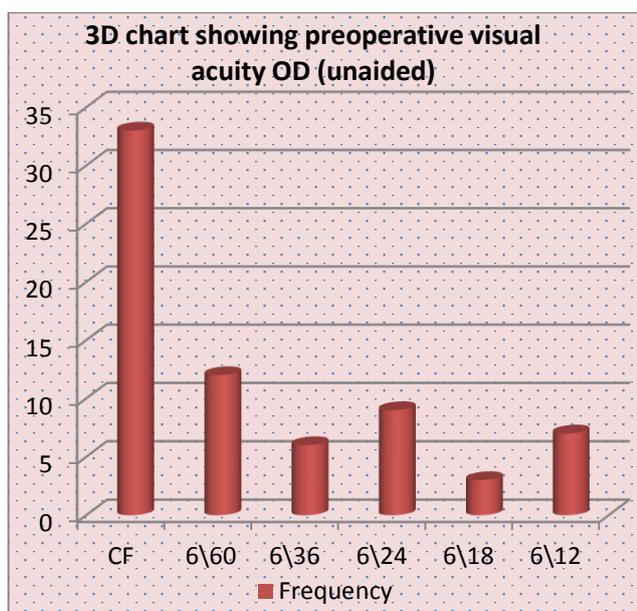
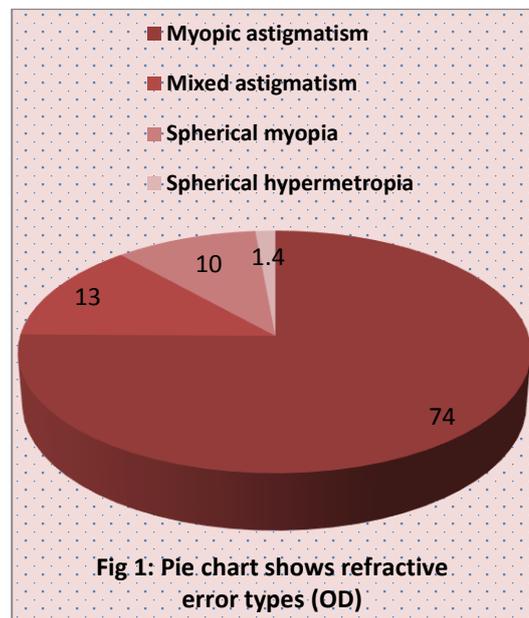
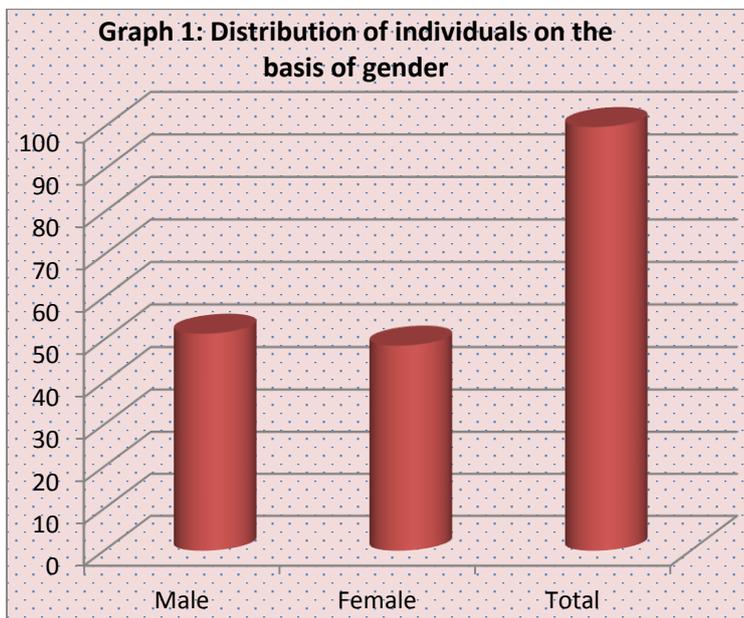
DISCUSSION

By modification of the corneal curvature, that the optical power of the eye can be changed and this forms the principal theory of laser refractive surgery.⁶ For the correction of myopia and myopic astigmatism, LASIK is performed which ablates the corneal tissue and flattens the central anterior corneal curvature. The subsequent increase in the corneal radius lowers the dioptric power of the cornea and allows accurate correction of myopic defects.⁷ Greater outcome variability has been reported in eyes

with higher degrees of myopia, even though LASIK has been shown to be safe and effective for the treatment of myopia.^{8- 10}

Various factors which have been proved to be influential elements for LASIK includes patient age, optical zone diameter, epithelial hyperplasia, and preoperative keratometry.^{11, 12} Hence, we evaluated the subjective patient satisfaction and visual improvement after LASIK for the correction of myopia.

We found that all of the patients achieved their best corrected visual acuity (BCVA) and even better and the patients were satisfied with the outcomes and no sight-threatening complications occurred during the follow-up period and p-value was (0.00), which is significant. Regarding Complications; Millions of people have undergone laser eye surgery in the past decade, and living happily and safely with it. When done properly by an experienced eye surgeon, and to the suitable case, there is no serious sight threatening complications and the benefits are immense and appreciated very well. However, there are some risks which can occur, and you should be aware of their possibility.¹³ An excellent refractive outcome with a good predictability with 88% of eyes within ± 0.5 D and 95% within ± 1.0 D from emmetropia was shown in the present study. The mean score for the overall satisfaction was 2.85 ± 0.7 on a scale of 0-3 (a score of 3 meaning that the patient was totally satisfied).



A uniform postoperative interval for administering the questionnaire was considered in the present study. All patients were asked to fill the questionnaire at the 6 months follow-up visit. Patient perception changes over time due to psychological factors and corneal healing. However, more than 6% of the patients had problem with driving during the night time in the present study. From these results, it can be hypothesized that while making the assessment of post-surgical outcomes of the patients, a high number of patients were found to have problems with clarity of vision during night driving. Mostafa et al. evaluated the effect of preoperative and postoperative keratometry on the refractive outcome after LASIK myopia cases. From the results, they concluded that the refractive outcome especially in high myopic eyes is influenced by preoperative and postoperative keratometry.¹⁴ Bamashmus et al evaluated the subjective quality of vision and patient satisfaction after LASIK in patients with myopia and myopic astigmatism. From the results, they concluded that LASIK reports a high level of functional improvement, improved quality-of-life, and consistently high levels of satisfaction after the surgery on the basis of a wide range of visual parameters.¹⁵ López-Montemayor et al evaluated the relationship between LASIK patient profile and its follow-up compliance. From the results, they concluded that no association exists with age, gender, occupation or surgical treatment in the patients that did complete the established six follow up visits.¹⁶ Lee et al evaluated the satisfaction levels in physicians who underwent corneal refractive surgery. From the results, they concluded that for the physicians who performs intensive near vision-dependent activities and delicate operations, can safely undergo corneal refractive surgery.¹⁷

CONCLUSION

From the results, it can be concluded that LASIK technique gives a good result regarding the early visual outcome by achieving the BCVA post-laser. Future research in this field is advocated for better results of the surgery.

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REFERENCES

1. Casson RJ, Newland HS, Muecke J, McGovern S, Durkin S, Sullivan T, Aung T: Prevalence and causes of visual impairment in rural Myanmar: the Meiktila Eye Study. *Ophthalmology* 2007;114:2302–2308.
2. Rein DB, Zhang P, Wirth KE, Lee PP, Hoerger TJ, McCall N, Klein R, Tielsch JM, Vijan S, Saaddine J: The economic burden of major adult visual disorders in the United States. *Arch Ophthalmol* 2006;124:1754–1760.
3. Kempen JH, Mitchell P, Lee KE, Tielsch JM, Broman AT, Taylor HR, Ikram MK, Congdon NG, O'Colmain BJ, Eye Diseases Prevalence Research Group: The prevalence of refractive errors among adults in the United States, Western Europe, and Australia. *Arch Ophthalmol* 2004;122:495–505.
4. Sawada A, Tomidokoro A, Araie M, Iwase A, Yamamoto T, Tajimi Study Group: Refractive errors in an elderly Japanese population: the Tajimi study. *Ophthalmology* 2008;115:363–370.
5. Freeman MI. Spectacles vs contact lenses in the correction of unilateral axial myopia. *Arch Ophthalmol* 1992; 110:180.

6. K.-M. A. Tuan and D. Chernyak, "Corneal asphericity and visual function after wavefront-guided LASIK," *Optometry and Vision Science*, vol. 83, no. 8, pp. 605–610, 2006.
7. G. Savini, K. J. Hoffer, M. Carbonelli, and P. Barboni, "Scheimpflug analysis of corneal power changes after myopic excimer laser surgery," *Journal of Cataract and Refractive Surgery*, vol. 39, no. 4, pp. 605–610, 2013.
8. A. Maldonado-Bas and R. Onnis, "Results of laser in situ keratomileusis in different degrees of myopia," *Ophthalmology*, vol. 105, no. 4, pp. 606–611, 1998.
9. R. J.-F. Tsai, "Laser in situ keratomileusis for myopia of -2 to -25 diopters," *Journal of Refractive Surgery*, vol. 13, no. 5, supplement, pp. S427–S429, 1997.
10. J. J. Perez-Santonja, J. Bellot, P. Claramonte, M. M. Ismail, and J. L. Alio, "Laser in situ keratomileusis to correct high myopia," *Journal of Cataract and Refractive Surgery*, vol. 23, no. 3, pp. 372–385, 1997.
11. K. Ditzgen, A. Handzel, and S. Pieger, "Laser in situ keratomileusis nomogram development," *Journal of Refractive Surgery*, vol. 15, no. 2, supplement, pp. S197–S201, 1999.
12. C. P. Lohmann and J. L. Güell, "Regression after LASIK for the treatment of myopia: the role of the corneal epithelium," *Seminars in Ophthalmology*, vol. 13, no. 2, pp. 79–82, 1998.
13. D'Arcy FM, Kirwan C, O'keefe M. Ten year follow up of laser in situ keratomileusis for all levels of myopia. *Acta Ophthalmol* 2012;90:e335–6.
14. Mostafa EM. Effect of Flat Cornea on Visual Outcome after LASIK. *J Ophthalmol*.2015; ID 794854, 7 pages.
15. Bamashmus MA, Hubaish K, Alawad M, Alakhlee H. Functional Outcome and Patient Satisfaction after Laser In Situ Keratomileusis for Correction of Myopia and Myopic Astigmatism. *Middle East Afr J Ophthalmol*.2015; 22(1): 108–114.
16. López-Montemayor P, Hernández-Camarena JC, Valdez-García JE. Patient profile and postoperative follow up compliance in refractive surgery. *Revista Mexicana de Oftalmología*. 2016; 90(3): 125–128.
17. Lee EK, Kwon JW, Hyon JY, Han YK. Satisfaction Level of Physicians Who Have Undergone Corneal Refractive Surgery. *Korean J Ophthalmol*. 2012;26(5):331-338

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