Summary

The present study was performed to evaluate and compare some methods used to measure corneal refractive power and calculate intraocular lens power after LASIK.

One hundred eyes of fifty four patients were included in the present study.

Before and after LASIK all patients were subjected to the following examination.

1- Measurement of V.A.

2- Refraction with Canon Automated Refractometer.

3- Measurement of BCVA.

4- Slit lamp examination of the anterior segment.

5- Fundus examination.

6- Corneal topography using corneal topographer CT-1000 SHIN NIPPON.

7- Ultrasonic pachymetry.

8- Biometry using Advent A/B system Accutome ultrasound.

Was calculated the postoperative corneal refractive power using the following methods:

1- Historical method (HisRP).

2- Corneal topography (Sim k) (K_{post})

3- Gaussion optics formula (Gau RP).

Clinical history method was taken as a standard. Then compared between it and other two methods. It was found that K_{post} measured by

corneal topography underestimated the amount of corneal refractive change whereas the Gau RP overestimated the amount of corneal refractive change.

By regression analysis of the results it was found that when the K_{post} was reduced according to the following formula

$$K_{post\text{-}adj} = K_{post} - 0.134\ (SE_{post} - SE_{pre}) - 0.601$$

the values of $K_{post\text{-}adj}$ were within ± 0.62 of HisRP values.

Also comparison was done between values of IOL powers calculated postoperatively by the three different formula (SRK11, SRK/T and Holladay) using the four different K-readings (K_{post}, HisRP, GauRP, $K_{post\text{-}adj}$).

It was found that the highest IOL power was that calculated by Holladay formula using GauRP.