Abstract

Introduction

In the last two decades, Refractive eye surgeries have been reported as the most non-emergency ophthalmic surgeries. Due to the effect of reduced refractive errors and increased visual acuity in enhancing the quality of vision and indirectly increasing the quality of life of patients, also complications of these surgeries to obtain optimal results, very accurate pre-surgical screening is one of the key factors in the refractive errors surgical success. Therefore, accurate measurements of anterior and posterior corneal parameters should be considered to obtain comprehensive information about cornea.

Aims

The aim of this study is determining Pentacam indices in the patients undergone PRK in the Noor surgical center of Ardabil during the recent 5 years (2013-2017) and their correlation with the refractive errors type.

Materials & Methods

This descriptive cross-sectional study has been performed on 2215 eyes of 1125 patients undergoing PRK surgery. Having prepared the patient's checklist including demographic information, refractive index, keratometry, pachymetry, corneal surface zone indices, and progressive corneal thickness indices, the data collected were analyzed by statistical analysis program IBM SPSS 25, descriptive statistics, and statistical methods such as T test, one way ANOVA and Pearson.

Results

The mean age of the subjects was 28.48 ± 6.82 years including 378 (33.6%) males and 747 (66.4%) females. The mean Spherical Equivalent among the samples was -3.91± 2.5. Myopia with the rate of 85.73% was the most common refractive error.

The findings showed that WTR type astigmatism was the most prevalent in refractive astigmatism, both in ACA and PCA and there is a significant correlation between refractive astigmatism with ACA and ACA with PCA.

The mean Kmax front was 44.844 ± 1.58 D, which was significantly correlated with refractive errors. According to the findings, corneal thickness had no relation to refractive errors. Also, there was a significant relationship between anterior chamber indices and types of refractive errors and their severity. There was also a significant correlation between the keratoconus indices include ISV, IVA, IHA and Rmin with refractive errors. Another result of this study was the calculation of the ORA mean by the Alpine formula as -0.750 ± 0.653D.

conclusion

The findings of the present study in patients undergoing PRK surgery showed that Pentacam indices can be related to the types and severity of refractive errors, so their evaluation is important in this aspect.

Keword: Pentacam indices**, PRK,** refractive errors