Introduction

- Since keratoconus is an ectatic disease affecting both anterior and posterior surface, there might be changes in corneal endothelial cell number and morphology in severe stage.
- The prevalence of keratoconus is approximately 54.5 per 100,000 populations. The average annual incidence rate is 1 per 2000 population but may vary widely due to variations in diagnostic criteria and racial predilections. A more realistic estimate is between 50 to 230 per 100,000 but no data with stratification for disease severity exist. Solid estimates on the incidence, severity and treatment.[1]
- A study by Uçakhan, et al., (2006) showed that in eyes with severe keratoconus, the mean endothelial cell density was statistically significantly lower than in eyes with moderate (P<0.05) or mild (P<0.05) keratoconus. Another study was conducted by Hollingsworth et al., who reported that endothelial cell density of central keratoconus corneas was significantly higher than that of controls.[2][3]

Aim

- This study aims to analyze endothelial cell count in Keratoconus patient & normal astigmatic patients. Examine changes in corneal endothelial cell density in different stages of Keratoconus & evaluate it.

Methodology

- A prospective hospital based study of 50 eyes with different grades of Keratoconus & 50 eyes with normal corneal astigmatism was done at Rotary eye institute, Navsari, from July 2018-December 2018.
- In this study, 18 eyes with mild (<46D), 25 eyes with moderate (46-52D) & 7 eyes with severe (>52D) keratoconic eyes compared with 50 eyes having astigmatism of >±2.00 dcyl.
- After performing routine ophthalmic examination, the following measurements were recorded: endothelial Cell count, corneal thickness & corneal curvature.
- After taking consent from patient all procedure was performed. Comparison was done by using non-contact specular microscopy (Topcon SP-2000P) for endothelial Cell count, corneal thickness & corneal topography with Zeiss ATLAS™ 9000.

Inclusion criteria:

- Age between 10-40 years.
- All keratoconus patient
- Prior contact lens wear.
- In normal cornea Astigmatism > ±2.00 dcyl.

Exclusion criteria:

- Systemic disease that may affect the cornea.
- Other ocular surgery.
- Chemical injury
- Statistical analysis done by using ANOVA (Analysis of Variance) & t-Test: Two-Sample Assuming Equal Variances.

Results

- In overall 100 eyes, 50 eyes of control group (normal astigmatic patients) and 50 eyes of keratoconus group were studied. Out of 50 eyes of control group 32% were male and 66% were female & in keratoconus group 60%were male rest 40 %were female.

- In this current study Mean endothelial cell count in control group was 4112±682 & in keratoconus group mean endothelial cell count was 3320 ± 682 (P<0.05).
- Mean endothelial cell count in mild group not very much differ with moderate group but in severe group there was clinically significant difference (P: 0.35) as shown in graph.

Conclusion

- Endothelial cell count changes were observed in keratoconic eyes & in normal astigmatic eyes. Endothelial cell count decreases as the severity of keratoconus increases compared to normal astigmatic corneas...
- The difference is more in eyes with severe keratoconus compare to normal.
- Keratoconus does not have any considerable effect on endothelial cell count in mild & moderate stages.

References