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Opinion Article

Relevance of Corneal Endothelium with Age-related Keratoconus

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DESCRIPTION

Due to the cornea's asymmetrical protrusion and growing thinness, Keratoconus (KC) is a disorder that impairs vision and creates uneven astigmatism. Before stabilizing, it typically proceeds for 7-8 years after being diagnosed in youth. This study's goal was to examine the relationships between corneal endothelial cell characteristics and corneal topography factors in middle-aged untreated Keratoconus (KC) patients. It has been claimed that heredity, mechanical damage, and enzymatic changes in the cornea all contribute to the condition, even if the actual reason is still unknown. These factors have an impact on the histo-pathological state of almost all corneal layers. Several histological studies on KC cases have noted scarring, stromal thinning, bowman layer tears, and disintegration of the epithelial basement membrane. In these instances, confocal and specular microscopy have been used to examine the endothelium layer. Confocal microscopy studies have shown flattening of the basal epithelial cells, changes in the stromal keratocyte organisation, thickening of the intracorneal nerves, extension and elongation of the endothelial cells in the area of the cone apex, and fold growth in endothelial cells close to the hydrops cite. In research using specular microscopy, conflicting outcomes have been observed. While other studies found no difference, some found reduced Endothelial Cell Density (ECD) when compared to healthy eyes. Similar to this, some studies find no change in KC instances while others report a decrease in Hexagonal Cell Percentage (HCP) and an increase in Coefficient of Variation (CV). The number of patients involved in the trials, the age distribution of the patients, the stages of keratoconus, and prior therapeutic modalities may all be contributing factors to the discrepancies in the results. Most studies in the literature regularly assessed young patient groups with newly diagnosed conditions. The course of KC might advance swiftly for three to five years before stopping, or, in certain cases, it can advance sporadically over a longer length of time. The majority of the time, progression is anticipated between the ages of 10 and 20, with less progress anticipated between the ages of 20 and 30, and no progress anticipated after the age of 30. This study evaluated corneal endothelial cell parameters in middle-aged KC patients who had not had any treatment and looked into how they related to corneal topography factors. In order to comprehend the long-term impact of KC on the endothelium, we conducted endothelial study in the older age group. The individuals in this study were middle-aged and weren't expected to develop to KC. We contrasted the characteristics of their corneal endothelial cells to those of healthy individuals of a comparable age. We found that endothelial cell shape was severely impacted, despite the fact that there was no significant difference in ECD. Only patients who had never undergone surgery and had never worn contact lenses were included in this study. As participants were grouped based on their KC stage, the proportion of patients in the severe stages decreased. Because patients with KC often have had multiple surgical operations for visual rehabilitation, obtaining such a patient group is noteworthy. If we had studied patients in more advanced stages, results might have been different. The scope of this investigation has a number of restrictions. With the use of modern technology, keratoconus can now be detected sooner and with more accuracy, and in some circumstances, different therapies are available. It was not possible to enroll a sufficient number of patients because respective patient group was so narrowly defined. Also, the centre cornea of each of patients underwent specular microscopy. Results would have been more accurate if they had been based on an evaluation of the region nearer the cone region.

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