

Reduction in Corneal Endothelial Density in DED Patients

Investigators evaluated corneal endothelial cell density in patients with dry-eye disease compared to an age-matched control group in this cross-sectional, controlled study.

This study included 90 eyes of 45 patients with moderate-to-severe DED (53.7 ± 9.8 years old) and 30 eyes of 15 normal controls (50.7 ± 9.8 years old). All subjects had a complete ophthalmic evaluation including symptom assessment using the Ocular Surface Disease Index and corneal fluorescein staining. In addition, the investigators performed laser scanning *in vivo* confocal microscopy to measure the density of the following parameters in the central cornea: endothelial cells; subbasal nerves; and subbasal immune dendritic cells.

They noted that corneal ECD was significantly lower in the DED group (2595.8 ± 356.1 cells/mm²) than in the control group (2812.7 ± 395.2 cells/mm², $p=0.046$) and that the DED group showed significantly lower corneal subbasal nerve density (17.1 ± 6.9 mm/mm²) compared to the control group (24.7 ± 4.4 mm/mm², $p<0.001$). The study investigators also noted that dendritic cell density was significantly higher in the DED group than in the controls (111.7 ± 137.3 vs. 32.0 ± 24.4 cells/mm², respectively, $p=0.002$). They also found statistically significant correlations between corneal ECD and dry-eye severity parameters including the OSDI score ($r_s=-0.26$, $p=0.03$) and corneal fluorescein staining ($r_s=-0.28$, $p=0.008$).

To conclude, there is a significant reduction in corneal ECD in DED that correlates with clinical severity of the disease.

SOURCE: Kheirkhah A, Saboo US, Abud TB, et al. Reduced corneal endothelial density in patients with dry eye disease. *Am J Ophthalmol*. 2015;March 15. [Epub ahead of print].