

Ocular Surface Alterations and In Vivo Confocal Microscopic Features of Corneas in Patients With Newly Diagnosed Graves' Disease

In this study, researchers evaluated the ocular surface characteristics and corneal microstructure in patients with newly diagnosed Graves' disease (GD) with no evidence of active thyroid eye disease (TED).

Eighty eyes of 40 patients with newly diagnosed GD and 40 age-matched control subjects were recruited in this cross-sectional study. All participants underwent ocular surface tests in the order of tear breakup time (BUT), lissamine green (LG) staining, Schirmer I test with anesthesia and ocular surface disease index (OSDI) questionnaire. Basal epithelial cell, keratocyte and endothelial cell densities and subbasal nerves were evaluated using in vivo confocal microscopy (IVCM). Independent sample t test, χ test and Mann-Whitney U test were used for statistical analysis.

Patients with GD had higher OSDI (5.9 ± 6.6 vs. 1.7 ± 2.4 , respectively, $p \leq 0.001$) and LG staining scores (0.5 ± 0.6 vs. 0.2 ± 0.4 , respectively, $p = 0.003$), and lower BUT scores (7.3 ± 2.5 vs. 9.9 ± 1.7 , respectively, $p < 0.001$) compared with those of control subjects. Patients with GD had lower mean basal epithelial cell density (3928 ± 657 cells/mm² vs. 4771 ± 622 cells/mm², respectively) and total subbasal nerve density (958 ± 394 cells/mm² vs. 1416 ± 744 cells/mm², respectively) and higher subbasal nerve tortuosity (2.7 ± 0.8 vs. 1.6 ± 0.6 , respectively) compared with those of control subjects ($p < 0.001$). There was a statistically significant negative correlation between the duration of symptoms of hyperthyroidism and BUT ($\rho = -0.273$, $p = 0.014$) and a positive correlation between LG staining scores ($\rho = 0.329$, $p = 0.003$). A significant reduction in BUT ($\rho = -0.238$, $p = 0.003$) and epithelial cell density ($\rho = -0.174$, $p = 0.029$) and an increase in OSDI scores ($\rho = 0.328$, $p = 0.003$) were found with increasing exophthalmometry measurements.

The investigators found ocular surface alterations begin early in the course of Graves' disease before the onset of overt TED.

SOURCE: Kocabeyoglu S, Mocan MC, Cevik Y, et al. Ocular surface alterations and in vivo confocal microscopic features of corneas in patients with newly diagnosed Graves' disease. *Cornea*. 2015 Jul;34(7):745-