PURPOSE: To evaluate central corneal thickness (CCT) and peripheral corneal thickness (PCT) in patients with rheumatoid arthritis (RA) and to assess the relationships among the corneal parameters, dry eye disease, and clinical variables of RA.

METHODS: A total of 58 RA patients and 58 control subjects participated in this study. A detailed ophthalmological examination was performed on each subject. Dry eye evaluation was performed using Schirmer's test, tear break-up time (TBUT), corneal fluorescein staining, and Ocular Surface Disease Index (OSDI). Corneal thickness at the apex point, the center of the pupil, the thinnest point, and PCT (3 mm from the apex to the superior, inferior, nasal, and temporal locations) were evaluated using Scheimpflug imaging (Pentacam®). Additionally, the relative peripheral index (RPI) was calculated by dividing the PCT by the CCT. The disease severity and quality of life were evaluated with DAS28 and HAQ, respectively. The laboratory evaluation comprised ESR and CRP.

RESULTS: The mean corneal thicknesses at the apex point, the center of the pupil, the thinnest point, and the superior, inferior, nasal, and temporal points were significantly thinner in RA patients than controls. Schirmer's test scores and TBUT were significantly lower, and corneal staining and OSDI scores were significantly higher in RA patients. There were no significant correlations between the corneal parameters and the clinical variables of RA or dry eye tests.

CONCLUSION: The CCT and PCT were thinner in RA patients compared to those in control subjects. However, there were no significant correlations between the corneal parameters and the clinical variables of RA or dry eye tests.