

Corneal endothelium changes in patients with uveitis

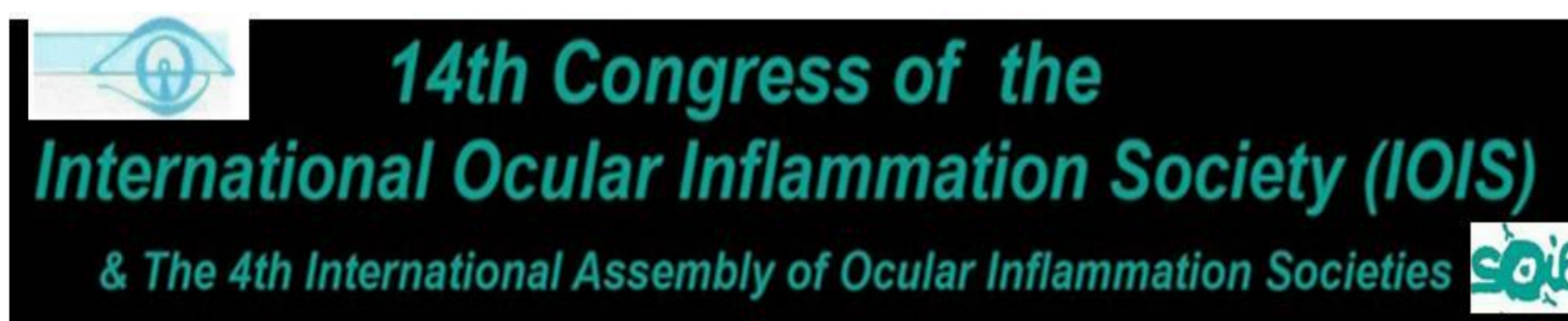
Sana Khochtali, Sourour Zina, Nesrine Abroug, Mohamed Salah Hani, Salim Ben Yahia, Bechir Jelliti, Moncef Khairallah

Department of Ophthalmology, Fattouma Bourguiba University Hospital

Faculty of Medicine, University of Monastir

Monastir – TUNISIA

Financial interests: none



Background:

Uveitis may induce many corneal changes, including band keratopathy, iridocorneal adhesions, keratic precipitates, and corneal edema.

Our purpose was to study corneal endothelium changes in eyes with uveitis and to investigate factors that may influence these findings.

Patients & Methods:

❖ Prospective study including 3 groups: a group of eyes with active anterior chamber inflammation (63 eyes, 38 patients), a group of eyes with inactive uveitis (72 eyes, 41 patients), and a control group of healthy eyes (84 eyes, 42 patients).

❖ Eyes with a history of ocular surgery, intraocular hypertension or other ocular disease that is known to affect the corneal endothelium were excluded.

❖ All patients had a complete ophthalmological examination, a laser flare photometry and a noncontact specular microscopy.

❖ Endothelial cell density (ECD), morphologic variables and central corneal thickness were also assessed at one month follow-up in the group with active uveitis.

Results:

❖ Endothelial cell density (ECD) and percentage hexagonality (HEX) were lower in eyes with uveitis than in the control group (**table 1**) (**figure 1**).

❖ However, the coefficient of variance (CV) and the central corneal thickness (CCT) were significantly higher than in the control group (**table 1**).

❖ ECD was higher in the group of active uveitis than in the group of inactive uveitis, but the difference was not statistically significant (**table 2**). The CV and the CCT were higher, and the HEX was lower in the eyes with active uveitis (**table 2**).

❖ Among patients with active uveitis, no significant differences were found in the specular microscopy indices between the first visit and the visit at one month.

❖ In eyes with initial severe anterior chamber inflammation (laser flare photometry value ≥ 50 ph/ms, or cells $\geq 2+$), there was significant increase in ECD and HEX at one month follow-up. On the other hand, the CV and the CCT significantly decreased.

❖ Increase in ECD, and decrease in CCT correlated with initial anterior chamber flare.

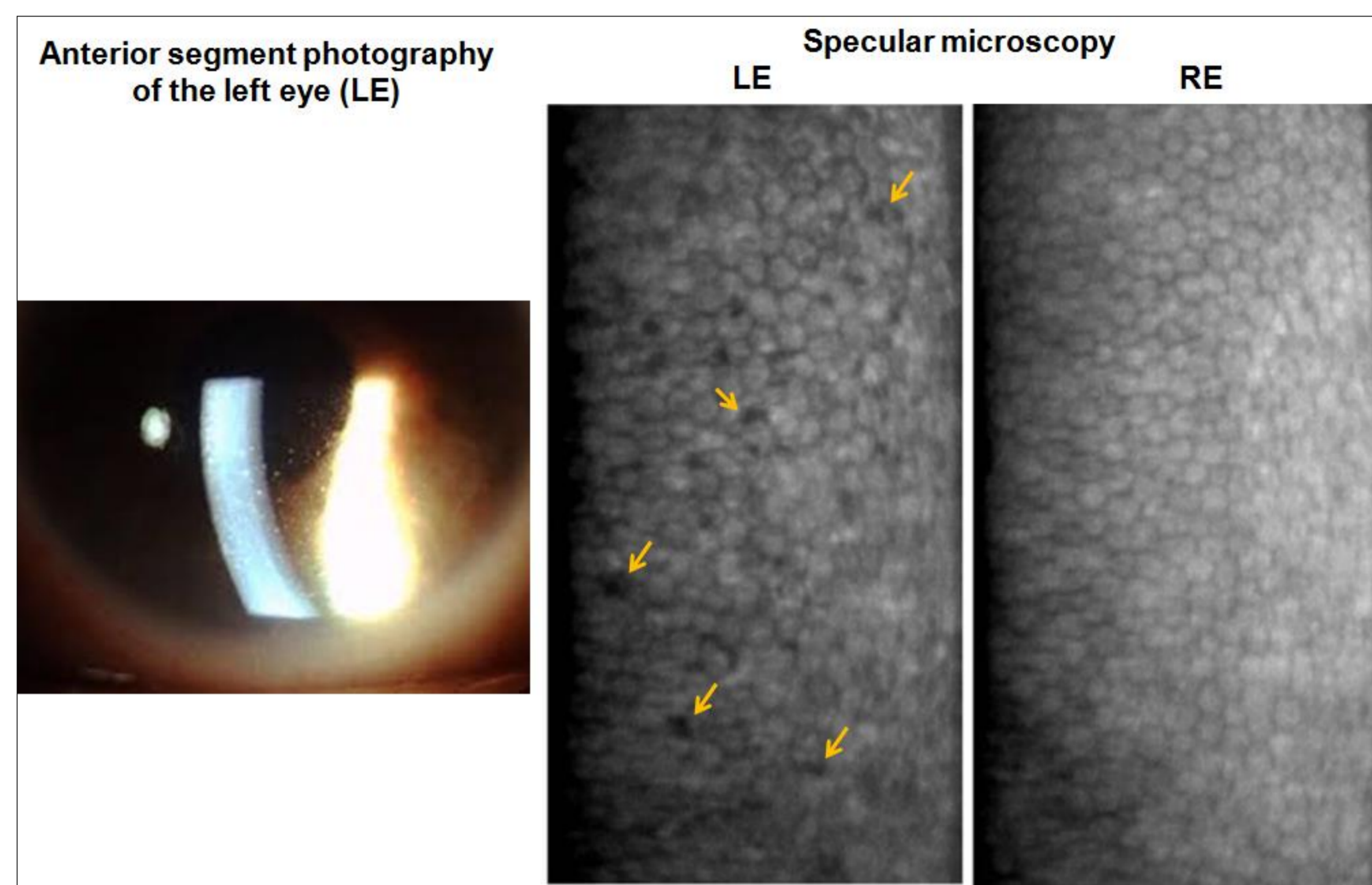


Figure 1: Slit-lamp photography and specular microscopy of a patient with unilateral Fuchs' uveitis. Slit-lamp photograph of the left eye (LE) showing small, stellate keratic precipitates scattered on the entire endothelium. Specular microscopy of the LE revealing an endothelial cell density and percentage hexagonality (HEX) lower than in the RE with many small dark spots (arrows)

TABLE 1: CCT and specular microscopy variables in uveitis group and in control group.

	Uveitis group	Control group	P
ECD (cell/ μm^3)	2613	2698	0,01
CV (%)	30	28	0,002
HEX (%)	66	68	0,01
CCT (μm)	544	525	0,002

Table 2: CCT and specular microscopy variables in uveitis group, Comparison between active and inactive uveitis groups.

	Active uveitis group	Inactive uveitis group	p
ECD (cell/ μm^3)	2642	2587	0,2
CV (%)	31	29	0,004
HEX (%)	64,7	67	0,02
CCT (μm)	555	535	0,006

Conclusions:

Anterior segment inflammation may cause qualitative and quantitative endothelial changes. These changes may be responsible for permanent or transient endothelial dysfunction.