Currently, scleral lenses are one of the most fitted contact lens in keratoconus patients. It has been described the presence of inflammatory molecules and sign and symptoms of dry eye in these patients. Also, ocular surface temperature has been related with dry eye, being higher in patient with this pathology.

The purpose of this study was to evaluate the ocular surface temperature, before and after scleral lenses wearing, in keratoconus patients with and without intrastromal corneal ring segments (ICRS).

26 patients of keratoconus with ages ranging from 25 to 48 (mean 36.95 ± 8.65) were recruited for this study and divided in two groups: with or without implanted ICRS. Fourteen patients were included in the ICRS group and twelve patients were included in keratoconus without ICRS. All patients were fitted with scleral lens with 16.5 mm of diameter in both eyes but measures were only performed in one eye randomly. Ocular surface temperature was evaluated, using an infrared thermography camera, in eight different points, being four in the cornea (centre, nasal, temporal and inferior position), two in the limbus and another two in conjunctiva (nasal and temporal). All measurements were performed before fitting the scleral lens and after 8 hours of wearing.

The ocular surface temperature was slightly higher in ICRS group, being statistically significant in nasal conjunctiva, temporal limbus and inferior cornea positions* after eight hours of scleral lens wearing (p<0.05). However, it was slightly lower in keratoconus without ICRS group, being only statistically significant in inferior cornea position** (p<0.05). In both groups, the temperature was cooler in the centre of the cornea, being 1.4ºC warmest in the conjunctiva. Spots and areas are identified in the images A and B, being spot 1 the center of the cornea and areas 1 and 4 the limbus. The Y axis on the graphs represent the temperature in Celsius.

Scleral lens wearing slightly increases the ocular surface temperature in patients with ICRS, however a low temperature tendency in keratoconus patients without ICRS was found.

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