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DOCTORAL THESIS

**QUANTITATIVE AND QUALITATIVE CHANGES
IN CORNEAL ENDOTHELIUM AFTER RETINAL
DETACHMENT SURGERY**

A B S T R A C T

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ABSTRACT

Vision disorders have been a concern since ancient times, as man is fundamentally a visual being, and its loss causes irreparable damage, not only to those who suffers, but also to their closest social environment. Retinal detachment is an acute process, but it occurs as a consequence of previous structural changes in the vitreous and retina whose evolution is usually very slow and clinically silent. Corneal complications of in vitro-retinal surgery are rarely the main concern of the surgeon operating a complex retinal detachment.

This paper is a retrospective study, started in 2017, conducted on a group of patients admitted to the Clinical Department of Ophthalmology of the Central Military Emergency University Hospital "Dr. Carol Davila", during 2017-2021. Patients included in the study have a diagnosis of reghmatogenous or tractional retinal detachment, which requires surgery as a method of treatment (posterior vitrectomy and endotamponade with silicone oil 1000 centistokes).

The studied group consists of a number of 40 patients, both female and male, aged between 54 and 75 years.

To acquire corneal condition data, we used the Nidek Specular Microscope CEM-530, a new specular optical microscope used to obtain corneal endothelial parameters.

I recorded data on the parameters that I intended to follow both preoperatively and on the first day and at 3 months postoperatively: endothelial cell density (CD) (cells / mm²), mean endothelial cell area (μ / mm²), the coefficient of variation of the endothelial cell area (CV) (%), the percentage of hexagonal cells (HEX) (%) and the thickness of the cornea (μ m). The data obtained were recorded in a database in Excel.

All measurements were performed by the same person and under the same conditions for all patients.

The Excel program of the Microsoft Office 365 suite was used for data processing and systematization. The graphical representations, as well as the statistical analysis of the data were performed using the same program, together with "add-ins" such as WinStat and XLstat.

To calculate the statistical significance of the results obtained, we used the online support provided by Prof. Richard Lowry - Vassar College Poughkeepsie, NY USA, through the link www.vassarstats.net.

Our study shows that the evaluated parameters (MCD, CV, AVG, HEX) suffer a decrease after surgery, and CT a slight increase both on the first day and three months postoperatively.

Special attention was paid to pseudofacial patients, included in the study in which a more significant decrease of all the parameters followed postoperatively was observed.