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Service (sector) Retina and Vitreous Nº CEP

The Use of Optical Coherence Tomography in the Epiretinal Prosthesis

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Objective: To study the first optical coherence tomography (OCT) exams in a patient that received intraocular epiretinal prosthesis for artificial vision and to compare to the fellow eye and to a control group with the same disease. **Methods:** A 55 year-old retinitis pigmentosa patient underwent surgery to implant an intraocular epiretinal prosthesis in the left eye. OCT exams were performed and compared before the surgery, after several months of electrical stimulation (when a trauma dislodged the implant) and after the devide reattachment surgery. The exams were also compared to fluorescein angiography and fundus examination. A control group was submitted to OCT scans with the same settings at UNIFESP. **Results:** OCT revealed increased retinal thickness in the electrically stimulated eye (left) when compared to the fellow eye and to preoperative exams as well as the absence of fibrosis or any other damage. Also the retinal thickness was higher in the stimulated eye when compared to the UNIFESP group. After the procedure to reattach the array new OCT exams showed the array position and retinal thickness in the edges of the electrodes. **Main Outcome Measures:** retinal thickness and postoperative relationship between the prosthesis and the underlying retina. **Conclusion:** The findings demonstrate that OCT is a promising tool for the evaluation of the retina and its relationships with the array in patients receiving visual prosthetic devices. Future studies may evaluate possible changes in the array position and effects on the host retina over time, as well as the relationships between retina-electrode distance and stimulation threshold over time.