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Service (sector)  
Retina and Vitreous

Nº CEP

### **Choriocapillary Photodynamic Therapy using Indocyanine Green.**

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**Purpose:** To evaluate the potential of photodynamic therapy (PDT) using indocyanine green (ICG) for occlusion of subretinal neovascular membranes, the authors studied efficiency and collateral damage of PDT – induced photothrombosis in the rabbit choriocapillary layer.

**Methods:** A total of 12-pigmented rabbits was used. Two different doses of indocyanine green dye infusion followed by light stimulation delivered by a modified infrared diode laser tuned to 805 nm, near the maximum absorption peak of ICG were used. Control group consisted of fellow eyes, which were treated after infusion of distilled water at same light parameters. Eyes were studied by fluorescein videoangiography 24 hs after treatment and enucleated for light and transmission electron microscopy at the seventh day.

**Results:** Complete choriocapillary occlusion was achieved at ICG doses of 10 and 20 mg/Kg and a radiant as low as 0.9 J/cm<sup>2</sup>. when PDT was performed with ICG dose of 10 mg/Kg, damage to the neural retina was minimal. Only inner photoreceptor segments showed degeneration. Bruch´s membrane remained intact. Retinal pigment epithelium was invariably damaged as seen with other photosensitizers.

**Conclusion:** Compared with photocoagulation I PDT allows endothelium-bound intraluminal photothrombosis, sparing important structures such as neural retina and Bruch´s membrane. Binding characteristics and chemical structure of ICG favor its localization and retention in abnormal rather than all vascular tissue as well as its spectral penetration characteristics are favorable to the angiographic delineation of the choroids and choriocapillares where CNV originates. Furthermore activation at 805 nm represents an outstanding benefit attributable to deeper light penetration. Taken together, these facts indicate that further study of I PDT of choroidal vascular disease is warranted.