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# Clinical Trial of Chronic Implantation of Suprachoroidal-Transretinal Stimulation System for Retinal Prosthesis

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Retinal prosthesis is an implantable medical device to reconstruct the sense of sight for blind individuals. We have been developing a new type of retinal prosthesis called suprachoroidal-transretinal stimulation (STS), whereby an electrode array is not attached to the retina directly. To evaluate the feasibility and safety of the retinal prosthesis using STS, a clinical trial was performed. We have developed an internal device for chronic implantation. It consists of a 49-channel electrode array that has 9 active electrodes. The retinal prosthesis was implanted in two patients with advanced retinitis pigmentosa (RP). Follow-up periods after implantation were five (Pt 1) and seven (Pt 2) weeks. No significant adverse event was observed in either patient after the surgical procedures. A functional test revealed that the detection or discrimination of objects was possible using the device, and a pulse frequency of around 20 Hz is the most effective in evoking phosphene. These clinical examinations showed that the retinal prosthesis with the STS system is safe and feasible for artificial vision.

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