Comparative study of the safety and efficacy of the Ahmed glaucoma valve model M4 (high density porous polyethylene) and the model S2 (polypropylene) in Mexican patients with neovascular glaucoma

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Purpose: Prospectively evaluate the safety and efficacy of the Ahmed Glaucoma Valve model M4 (conventional valve system in a high density porous polyethylene plate; Medpor) compared with the model S2 (polypropylene plate).

Methods: Mexican patients with neovascular glaucoma were randomly included for each group (M4 and S2). They were operated using conventional techniques and creating a sub-episcleral tunnel to place the valve's tube in the anterior chamber. After one year of monitoring, the results were evaluated with respect to a post-operative reduction in pressure, changes in visual acuity, the need for drugs and complications, in addition to the demographic characteristics of each group. Each operation using the M4 valve was performed by a single surgeon (Félix Gil-Carrasco, FGC). Those operated on using the S2 model had their surgery performed by the staff surgeons at the Glaucoma Department of the Mexican Association to Prevent Blindness (APEC).

Results: Each group (M4 and S2) contained 21 eyes of 21 Mexican patients with a diagnosis of neovascular glaucoma, creating a total of 42 patients undergoing surgery. The average preoperative IOP [intraocular pressure] was 43.5 (±11.8) and 42.24 (±12.84) mmHg for the M4 and S2 groups respectively. After one year of monitoring, the IOP reported was 18.9 (±9.7) mmHg for the final 18 patients in the M4 group and 16.38 (±9.76) mmHg for the 21 patients in the S2 group.

Conclusions: This study shows that the efficacy and safety of this porous coating system, the Ahmed glaucoma valve model M4 was similar to that of the Ahmed glaucoma valve model S2 during a twelve month monitoring period.