Pioneering Research Work on Effect of Mitomycin C on Tenon’s Capsule Fibroblast Cultures Established from Glaucoma Patients Undergoing Trabeculectomy Surgery

Dr. H.N. Madhavan

MITOMYCIN C AND TENON’S CAPSULE FIBROBLASTS
Seven fibroblast cultures established from Tenon’s capsule biopsy specimens of 17 different patients undergoing trabeculectomy was subjected to dose-inhibition studies of proliferating fibroblasts using varying concentrations of mitomycin C (MMC) (Figure 1). The cultures were exposed to the drug for either 5 days or 5 minutes. The in vitro results were correlated with the surgical outcomes of the patients, 3 months postoperatively. Based on in vitro results of mitomycin susceptibility, the fibroblasts cultures established from the patients were classified as either MMC “resistant” or MMC “sensitive”. The correlative results showed that 13 surgically successful cases were associated with 10 “sensitive” and 3 “resistant” fibroblasts; 4 surgical failures with 1 “sensitive” and 3 “resistant” fibroblast.1

Furthermore, the effects of MMC (1 microgram/ml for 5 min) on growth and morphology of 6 MMC “sensitive” and 4 MMC “resistant” human Tenon’s capsule fibroblasts cultures established from 10 patients who had had trabeculectomy for glaucoma were studied, and the results of surgical outcome of trabeculectomy in these patients were evaluated at the end of 8–10 weeks. Up to a period of 7 days, both types of fibroblasts showed increase of growth. MMC “sensitive” fibroblasts degenerated and declined to insignificant numbers in 47 days. MMC “resistant” fibroblasts showed decline in growth up to 27 days and upon further incubation showed remarkable recovery in morphology and growth by day 37. Moreover, the surgical outcome was observed to be positively correlating with the in vitro results of “sensitive” fibroblasts. A few clones of MMC “resistant” fibroblasts survived and multiplied as MMC effect was withdrawn.

REFERENCES

How to cite this article Madhavan H.N. Pioneering Research Work on Effect of Mitomycin C on Tenon’s Capsule Fibroblast Cultures Established from Glaucoma Patients Undergoing Trabeculectomy Surgery, Sci J Med & Vis Res Foun 2016;XXXIV:52.