ABSTRACT

THE EFFECT OF BEVACIZUMAB ON α-SMOOTH MUSCLE ACTIN EXPRESSION AND FIBROBLAST COUNT IN TRABECULECTOMY AREA TOWARDS PREVENTION OF FIBROSIS
(Experimental Study on Oryctolagus cuniculus)

Sekar Ayu Sitoresmi, Nurwasis, Evelyn Komaratih, Heriyawati

Objective: to analyze the effect of bevacizumab on α-smooth muscle actin expression and fibroblast count in trabeculectomy area of rabbit models in order to find a safer modulator of wound healing to improve surgical outcome.

Material and methods: 16 New Zealand white rabbits aged 4-6 months and weigh between 2,5-3,5 kg were performed trabeculectomy in their right eyes with postoperative subconjunctival injection of BSS and Bevacizumab. Rabbits were put into control and bevacizumab group using *simple random sampling.* Examination were done postoperative day 1, 7, and 14 and subjects were terminated and performed enucleation on postoperative day 14. The samples were histologically stained with Haematoxyline-Eosin to count the fibroblast and immunohistochemistry using α-smooth muscle actin antibody to differ the myofibroblast from fibroblast and the expression of α-SMA were collected using immunoreactive score.

Result: Mann Whitney u test and independent t-test were used to analyze the data, and we found both less expression of α-smooth muscle actin and fibroblast count on bevacizumab group compared to control group which indicates less myofibroblast, fibroblast, and less scarring potential in trabeculectomy area.

Conclusion: bevacizumab inhibits fibroblast proliferation and its differentiation to myofibroblast that lead to less collagen production and fibrosis.

Keyword: trabeculectomy, wound healing modulation, bevacizumab, myofibroblast, fibroblast