



International Journal of Psychosocial Rehabilitation

ISSN:1475-7192

[Login/Register \(/register-login\)](#)

Issue 2

A Framework on Health Smart Home Using IoT and Machine Learning for Disabled People (<https://www.psychosocial.com/article/PR200304/9743/>)

Authors: S.L. Rakshanasri, J. Naren, Dr.G. Vithya, S. Akhil, K. Dinesh Kumar and S. Sai Krishna Mohan Gupta

DOI: 10.37200/IJPR/V24I2/PR200304 (<https://doi.org/10.37200/IJPR/V24I2/PR200304>)

Pages: 1-9

Keywords: Smart Environment, IoT, Machine Learning, Fuzzy Logic

(<https://www.psychosocial.com/article/PR200304/9743/>)

([/register-login](#))

Ontological Framework for Analyzing Student's Emotional behavior Performance Enhancement Using Fuzzy Logic (<https://www.psychosocial.com/article/PR200305/9745/>)

Authors: Kirthika Ashokkumar, J. Naren, S.L. Rakshanasri and Dr.G. Vithya

DOI: 10.37200/IJPR/V24I2/PR200305 (<https://doi.org/10.37200/IJPR/V24I2/PR200305>)

Pages: 10-18

Keywords: Personality Traits, Semantic Feedback, Ontology, Fuzzy Logic

(<https://www.psychosocial.com/article/PR200305/9745/>)

([/register-login](#))

Health Smart Home with IoT – A State of Art Survey (<https://www.psychosocial.com/article/PR200306/9747/>)

Authors: S.L. Rakshanasri, J. Naren, Dr.G. Vithya, S. Akhil, K. Dinesh Kumar and S. Sai Krishna Mohan Gupta

DOI: 10.37200/IJPR/V24I2/PR200306 (<https://doi.org/10.37200/IJPR/V24I2/PR200306>)

Pages: 19-28

Keywords: Smart Health System, IOT, Art Survey

(<https://www.psychosocial.com/article/PR200306/9747/>)

([/register-login](#))

Economic Dimensions of Blockchain Technology: In the Context of Extention of Cryptocurrencies (<https://www.psychosocial.com/article/PR200307/9749/>)

Authors: Valliappan Raju and Siew Poh Phung

DOI: 10.37200/IJPR/V24I2/PR200307 (<https://doi.org/10.37200/IJPR/V24I2/PR200307>)

Pages: 29-39

Keywords: Blockchain Technology, FinTech, Distributed Ledger Technology, Smart Contracts, Blockchain Regulation

(<https://www.psychosocial.com/article/PR200307/9749/>)
(/register-login)

Observation of Bitcoin Trade for the Purpose of Hedge Trade in Global Stock Market (<https://www.psychosocial.com/article/PR200308/9751/>)

Authors: Valliappan Raju and Siew Poh Phung

DOI: 10.37200/IJPR/V24I2/PR200308 (<https://doi.org/10.37200/IJPR/V24I2/PR200308>)

Pages: 40-52

Keywords: Bitcoin Trade, Global Stock Exchange

(<https://www.psychosocial.com/article/PR200308/9751/>)
(/register-login)

Development of Auditing Compliance by Implementation of Blockchain Technology: An Explanatory Study based on Observations (<https://www.psychosocial.com/article/PR200309/9753/>)

Authors: Valliappan Raju and Siew Poh Phung

DOI: 10.37200/IJPR/V24I2/PR200309 (<https://doi.org/10.37200/IJPR/V24I2/PR200309>)

Pages: 53-60

Keywords: Blockchain Auditing, Blocking Technology

(<https://www.psychosocial.com/article/PR200309/9753/>)
(/register-login)

Utility of Blockchains in Publishing Sector: Focus on Academic Publishing (<https://www.psychosocial.com/article/PR200310/9755/>)

Authors: Siew Poh Phung and Valliappan Raju

DOI: 10.37200/IJPR/V24I2/PR200310 (<https://doi.org/10.37200/IJPR/V24I2/PR200310>)

Pages: 61-66

Keywords: Blockchain, Cryptocurrency, Bitcoin, Scholarly Communication, Publishing

(<https://www.psychosocial.com/article/PR200310/9755/>)
(/register-login)

(/register-login)

Association between Arterial Stiffness and Left Ventricular Diastolic Dysfunction in Stable Coronary Heart Disease (<https://www.psychosocial.com/article/PR200719/10761/>)

Authors: Diah Masita Cahyani, Achmad Lefi, Budi Utomo, Agus Soebagio

DOI: 10.37200/IJPR/V24I2/PR200719 (<https://doi.org/10.37200/IJPR/V24I2/PR200719>)

Pages: 4006-4013

Keywords: Arterial stiffness, Cardio-ankle vascular index, Diastolic, Left ventricular

(<https://www.psychosocial.com/article/PR200719/10761/>)

(/register-login)

CORRELATION BETWEEN SOCIAL ENGAGEMENT AND COGNITIVE FUNCTION IN ELDERLY (<https://www.psychosocial.com/article/PR200720/10763/>)

Authors: Margareth Haryanto, Eko Wahono, Riani Wisnujono, Mudjiani Basuki

DOI: 10.37200/IJPR/V24I2/PR200720 (<https://doi.org/10.37200/IJPR/V24I2/PR200720>)

Pages: 4014-4019

Keywords: social engagement, cognitive function, elderly, index social engagement

(<https://www.psychosocial.com/article/PR200720/10763/>)

(/register-login)

DIAGNOSTIC TEST USING NEUROLOGICAL DEPRESSION DISORDERS INVENTORY FOR EPILEPSY COMPARED TO HAMILTON DEPRESSION RATING SCALE -17 AS A GOLD STANDARD (<https://www.psychosocial.com/article/PR200721/10765/>)

Authors: Andi Prasetiawan, Kurnia Kusumastuti

DOI: 10.37200/IJPR/V24I2/PR200721 (<https://doi.org/10.37200/IJPR/V24I2/PR200721>)

Pages: 4020-4029

Keywords: Diagnostic Test, Neurological Disorders Depression Inventory for Epilepsy, Hamilton Depression Rating Scale-17

(<https://www.psychosocial.com/article/PR200721/10765/>)

(/register-login)

PAIN REDUCTION AFTER WET AND DRY CUPPING THERAPIES: ROLES OF $\alpha 2\beta 1$ INTEGRIN AND μ -OPIOID RECEPTOR IN ANIMAL MODELS (<https://www.psychosocial.com/article/PR200722/10767/>)

Authors: Imam Subadi, Boya Nugraha, Abdulhadi Suwandi, Nur Sulastri, Imam Susilo

DOI: 10.37200/IJPR/V24I2/PR200722 (<https://doi.org/10.37200/IJPR/V24I2/PR200722>)

Pages: 4030-4035

Keywords: Dry cupping, pain reduction, wet cupping,

(<https://www.psychosocial.com/article/PR200722/10767/>)
(/register-login)

Effect of Dual-Task Net Step Exercise on Working Memory, Global Cognitive Function and Brain Derived Neurotrophic Factor Serum Levels in Elderly with Mild and Moderate Cognitive Impairment (<https://www.psychosocial.com/article/PR200723/10769/>)

Authors: Subagyo, Imam Subadi, Asri Sulistyaningrum, Purwo Sri Rejeki, Meissy Andriana

DOI: 10.37200/IJPR/V24I2/PR200723 (<https://doi.org/10.37200/IJPR/V24I2/PR200723>)

Pages: 4036-4042

Keywords: BDNF, cognitive impairment, elderly, NSE

(<https://www.psychosocial.com/article/PR200723/10769/>)
(/register-login)

THE EFFECT OF BEVACIZUMAB ON ALPHA SMOOTH MUSCLE ACTIN EXPRESSION AND FIBROBLAST COUNT TO PREVENT POSTTRABECULECTOMY FIBROSIS IN NEW ZEALAND WHITE RABBIT (<https://www.psychosocial.com/article/PR200724/10771/>)

Authors: Sekar Ayu Sitoresmi, Nurwasis, Evelyn Komaratih, Heriyawatih

DOI: 10.37200/IJPR/V24I2/PR200724 (<https://doi.org/10.37200/IJPR/V24I2/PR200724>)

Pages: 4043-4048

Keywords: bevacizumab, fibrosis, glaucoma, post trabeculectomy

(<https://www.psychosocial.com/article/PR200724/10771/>)
(/register-login)

THE EFFECT OF TOPICAL MEDICATION CONTAINING BENZALKONIUM CHLORIDE ON OCULAR SURFACE DISEASE IN GLAUCOMA PATIENTS (<https://www.psychosocial.com/article/PR200725/10776/>)

Authors: Nurwasis, Rina Wulandari, Delfitri Lutfi

DOI: 10.37200/IJPR/V24I2/PR200725 (<https://doi.org/10.37200/IJPR/V24I2/PR200725>)

Pages: 4049-4053

Keywords: benzalkonium chloride, glaucoma, ocular surface disease, Schirmer I test, corneal staining.

(<https://www.psychosocial.com/article/PR200725/10776/>)
(/register-login)

THE STABILITY OF INTERLOCKING STERNOTOMY TECHNIQUE ON JAVA

GOAT STERNUM (CAPRA AEGAGRUS HIRCUS) IN VITRO BASED ON BIOMECHANICAL ANALYSIS (<https://www.psychosocial.com/article/PR200726/10773/>)

Authors: Jayarasti Kusumanegara, Heroe Soebroto

DOI: 10.37200/IJPR/V24I2/PR200726 (<https://doi.org/10.37200/IJPR/V24I2/PR200726>)

Pages: 4054-4061

Keywords: Interlocking Sternotomy, Straight Sternotomy, Biomechanics, transversal shear, longitudinal shear, lateral distraction

(<https://www.psychosocial.com/article/PR200726/10773/>)

(/register-login)

CORRELATION BETWEEN FREQUENCY AND DURATION ON READING THE QUR'AN WITH COGNITIVE FUNCTION AT ELDERLY (<https://www.psychosocial.com/article/PR200727/10779/>)

Authors: Pipit Soesilowati Tri Indrijaningrum, Muhammad Hamdan

DOI: 10.37200/IJPR/V24I2/PR200727 (<https://doi.org/10.37200/IJPR/V24I2/PR200727>)

Pages: 4062-4071

Keywords: Cognitive Activity, Reading The Quran, Cognitive Function, Elderly, MoCa-Ina

(<https://www.psychosocial.com/article/PR200727/10779/>)

(/register-login)

Correlation between vascular endothelial growth factor expression and cervical lymph node carcinoma (<https://www.psychosocial.com/article/PR200728/10782/>)

Authors: Miatina Artisnita Arisakti, Muhtarum Yusuf

DOI: 10.37200/IJPR/V24I2/PR200728 (<https://doi.org/10.37200/IJPR/V24I2/PR200728>)

Pages: 4072-4080

Keywords: Cervical lymph node, growth factor expression, nasopharyngeal carcinoma, vascular endothelial

(<https://www.psychosocial.com/article/PR200728/10782/>)

(/register-login)

Effectiveness of Isotonic Pelvic Abductor Exercise on Knee Osteoarthritis (<https://www.psychosocial.com/article/PR200729/10786/>)

Authors: Hermilawaty Abubakar Rudi Soebagyo, Noor Idha Handajani

DOI: 10.37200/IJPR/V24I2/PR200729 (<https://doi.org/10.37200/IJPR/V24I2/PR200729>)

Pages: 4081-4088

Keywords: Osteoarthritis, Isotonic Joint Abductor, Isotonic Femoral Quadriceps

(<https://www.psychosocial.com/article/PR200729/10786/>)

(/register-login)



International Journal of Psychosocial Rehabilitation

ISSN:1475-7192

[Login/Register \(/register-login\)](#)

Journal Information

This peer reviewed Journal was created in 1996 by practitioners, mental health program managers and mental health consumers to provide international practitioners, scholars and consumers with a forum to publish and discuss their work in program development, evaluation research, policy innovations, and therapeutic practices that have been successful in their particular region and cultures. IJPR is not associated with any university or governmental institution, nor is it part of any 'old boy' or other professional network. It was created to provide information to an international readership about issues related to psychosocial rehabilitation and associated topics.

Articles on psychosocial interventions, psychopharmacotherapy, mental health primary care, institutional and community care innovations, decentralization, policy changes, community & regionally based systems, and program evaluation are given particular attention. However, all articles that relate to psychosocial rehabilitation will be considered.

We invite comment from all readers on any and all subjects published in this journal, including the journal format itself. Feel free to comment on the Bulletin Board as well.

Current Editorial Board

Dr. Nira Hariyatie Hartani – Malaysia

Asst. Prof. Dr. Mohd Armi Abu Samah – Malaysia

Rathi Aarti, BPTTh, MPTh, – Cardiorespiratory – India

editor@psychosocial.com

Associate Editors

Ass. Prof. Dr. I Wayan Suryasa, Indonesia

Publishing Information

The International Journal of Psychosocial Rehabilitation is published by ADG, S..A .(ADG) ADG is a private non-profit, limited corporation in Honduras and operating in a limited capacity in the United

Kingdom. All information in IJPR is provided for personal use. Reproduction for publication or other use is strictly prohibited. Written permission must be obtained ADG, S.A., to reprint any information contained within the Journal, either in part or its entirety .

submission@psychosocial.com

For authors

Scope (<https://www.psychosocial.com/scope/>)

Track Your Paper (<https://www.psychosocial.com/track-your-paper/>)

Submit Online (<https://www.psychosocial.com/submit-online/>)

Editorial Overview (<https://www.psychosocial.com/editorial-overview/>)

Instructions for Authors (<https://www.psychosocial.com/instructions-for-authors/>)

Privacy & Cookie Policy (<https://www.psychosocial.com/privacy-cookie-policy/>)

Terms & Conditions (<https://www.psychosocial.com/terms-conditions-of-use/>)



Quick Links

About Publisher (<https://www.psychosocial.com/about-publisher/>)

Copy Rights (<https://www.psychosocial.com/text-book/>)

Contact Us

editor@psychosocial.com (<mailto:editor@psychosocial.com>)

Hampstead Psychological Associates,

Suite B19, 110 Gloucester Road,

London, NW1 8JA.

United Kingdom

Copyrights © 2022 SDA, LTD. All Rights Reserved.



International Journal of Psychosocial Rehabilitation

ISSN:1475-7192

[Login/Register \(/register-login\)](#)

Journal Information

This peer reviewed Journal was created in 1996 by practitioners, mental health program managers and mental health consumers to provide international practitioners, scholars and consumers with a forum to publish and discuss their work in program development, evaluation research, policy innovations, and therapeutic practices that have been successful in their particular region and cultures. IJPR is not associated with any university or governmental institution, nor is it part of any ‘old boy’ or other professional network. It was created to provide information to an international readership about issues related to psychosocial rehabilitation and associated topics.

Articles on psychosocial interventions, psychopharmacotherapy, mental health primary care, institutional and community care innovations, decentralization, policy changes, community & regionally based systems, and program evaluation are given particular attention. However, all articles that relate to psychosocial rehabilitation will be considered.

We invite comment from all readers on any and all subjects published in this journal, including the journal format itself. Feel free to comment on the Bulletin Board as well.

Current Editorial Board

Dr. Nira Hariyatie Hartani – Malaysia

Asst. Prof. Dr. Mohd Armi Abu Samah – Malaysia

Rathi Aarti, BPTTh, MPTh, – Cardiorespiratory – India

editor@psychosocial.com

Associate Editors

Ass. Prof. Dr. I Wayan Suryasa, Indonesia

Publishing Information

The International Journal of Psychosocial Rehabilitation is published by ADG, S..A .(ADG) ADG is a private non-profit, limited corporation in Honduras and operating in a limited capacity in the United

Kingdom. All information in IJPR is provided for personal use. Reproduction for publication or other use is strictly prohibited. Written permission must be obtained ADG, S.A., to reprint any information contained within the Journal, either in part or its entirety .

submission@psychosocial.com

For authors

Scope (<https://www.psychosocial.com/scope/>)

Track Your Paper (<https://www.psychosocial.com/track-your-paper/>)

Submit Online (<https://www.psychosocial.com/submit-online/>)

Editorial Overview (<https://www.psychosocial.com/editorial-overview/>)

Instructions for Authors (<https://www.psychosocial.com/instructions-for-authors/>)

Privacy & Cookie Policy (<https://www.psychosocial.com/privacy-cookie-policy/>)

Terms & Conditions (<https://www.psychosocial.com/terms-conditions-of-use/>)



Quick Links

About Publisher (<https://www.psychosocial.com/about-publisher/>)

Copy Rights (<https://www.psychosocial.com/text-book/>)

Contact Us

editor@psychosocial.com (<mailto:editor@psychosocial.com>)

Hampstead Psychological Associates,

Suite B19, 110 Gloucester Road,

London, NW1 8JA.

United Kingdom

Copyrights © 2022 SDA, LTD. All Rights Reserved.

THE EFFECT OF BEVACIZUMAB ON ALPHA SMOOTH MUSCLE ACTINEXPRESSION AND FIBROBLAST COUNT TO PREVENT POSTTRABECULECTOMY FIBROSIS IN NEW ZEALAND WHITE RABBIT

¹Sekar Ayu Sitoresmi, ^{*1}Nurwasis, ¹Evelyn Komaratih, ²Heriyawatih

ABSTRACT---Background, the wound healing process is the most common cause of glaucoma surgery failure that causes the incapability of controlling the intraocular pressure (IOP) and progressive optic nerve damage.

Objective: This study aimed to analyze the effect of Bevacizumab on myofibroblast and fibroblast in trabeculectomy area of rabbit models in order to find a safer wound healing modulator to improve surgical outcomes.

Method: Sixteen New Zealand white rabbits aged 4-6 months and weight between 2,5-3,5 kg was performed trabeculectomy on the right eye with postoperative subconjunctival injection of BSS and Bevacizumab. Subjects were put into control and bevacizumab group. Examination were done and subjects were terminated and performed enucleation on postoperative day 14. Samples were histologically stained with Haematoxyline-Eosin to count the fibroblast.

Result: Mann Whitney u test and independent t-test were used to analyse the data. We found both less expression of alpha smooth muscle act in and fibroblast count on bevacizumab group compared to control group which indicates less myofibroblast, fibroblast, and less scarring potential in trabeculectomy area. There is significant decrease in expression of α -SMA in bevacizumab group compared to control group ($p= 0,0195$), and with independent t-test we found less fibroblast in bevacizumab group significantly ($p= 0,0005$).

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

Keywords---bevacizumab, fibrosis, glaucoma, post trabeculectomy

¹Ophthalmology Department, Medical Faculty of Airlangga University, Surabaya 60131, Indonesia.

²Anatomical Pathology Department, Medical Faculty of Airlangga University, Surabaya 60131, Indonesia.

*Corresponding Author: Dr.Nurwasis dr., Sp.M(K)

Ophthalmology Department, Medical Faculty of Airlangga University, Surabaya 60131, Indonesia.

Email: nurwasisspm@yahoo.com; nurwasis.unair@gmail.com

I. INTRODUCTION

Glaucoma is one of the most common causes of blindness throughout the world including Asia (Hong Kong, Japan, and India). The number of glaucoma patients is estimated to be 79,6 millions in 2020, and 50% of this number is Asian(Quigley and Boman, 2006; Leung, Medeiros and Weinreb, 2008). This disease is caused by a group of optic neuropathies that lead to progressive degeneration of retinal ganglion cells(Leung, Medeiros and Weinreb, 2008). One of the important risk factors for glaucoma is high intraocular pressure (IOP)(Gordon *et al.*, 2003) that is mainly caused by increased resistance to aqueous humor outflow within the conventional outflow pathway (Overby, Stamer and Johnson, 2009; Stamer and Acott, 2012).

Trabeculectomy is the gold standard if medical therapy or laser surgery is incapable of decreasing IOP. The wound healing process of episclera and Tenon's capsule is the most common cause of surgical failure that causes the failure of controlling the IOP and progressive optic nerve damage. Inhibition of fibrosis is important to improve surgical outcome and the popular agents is antimetabolites like mitomycin-C (MMC) and 5-fluorouracyl (5-FU), but the side effects are unfavorable. Antimetabolites can cause nonselective cell death through apoptosis and necrosis, which lead to complications like bleb leak, hypo tony, blebitis, and endophthalmitis. Topical corticosteroids can decrease postoperative IOP but the long-term complications like cataract, secondary infection, herpes activation, and IOP increase is unfavorable for some surgeons. This situation made researchers innovate new agents that are more specific and effective in controlling fibro genesis and have acceptable side effects, one of them is anti vascular endothelial growth factor (anti-VEGF)(Li *et al.*, 2009).

Bevacizumab is monoclonal antibody of nonselective VEGF that inhibits the proliferation of fibroblast mediated by VEGF in vitro. Previous study proved that bevacizumab decreases fibroblast proliferation of Tenon's capsule and induced cell death(O'Neill *et al.*, 2010). Another study stated that VEGF induced myofibroblast transformation post trabeculectomy through transforming growth factor β 1(TGF- β 1)in rabbit model given VEGF and antiVEGF bevacizumab(Park, Kim and Park, 2013). In this experimental study in rabbits, subconjunctival bevacizumab was injected postoperatively to determine the effect of bevacizumab in inhibition of fibrosis through inhibition of fibroblast proliferation and its differentiation to myofibroblast that is expressed with intraselularalpha smooth muscle act in (α -SMA). Inhibiting subconjunctival fibrosis is expected to increase surgical outcome in postoperative period. This study is aimed to analyse the effect of Bevacizumab on myofibroblast and fibroblast in trabeculectomy area of rabbit models in order to find a safer wound healing modulator to improve surgical outcomes.

II. METHODS

This study is a true experimental study with randomized posttest only control group design to evaluate α -smooth muscle act in expression and fibroblast count in New Zealand white rabbit(*Oryctolagus cuniculus*) given subconjunctival injection of bevacizumab post trabeculectomy. This study was conducted in Stem Cell Research and Development Center, Airlangga University, Surabaya. We used 16rabbits aged 4-6 months, male, and weight 2,5-3,5 kg with healthy eyes and bodies. We excluded the subjects with diseases in eyes or bodies, and potential to spread diseases.

Rabbits in control group (16 rabbits) was performed trabeculectomy in one eye with subconjunctival injection of BSS(0,05 mL) and in the bevacizumab group we performed trabeculectomy with subconjunctival injection of 1,25mg/0,05 mL bevacizumab (Avastin, Genentech.inc). Postoperatively, we examined the IOP and anterior segment of the subjects and the data was recorded at day 1, 7, and 14. We terminated the subjects on day 14postoperative and performed denucleation. Myofibroblast was examined using immunehisto chemistry using alpha smooth muscle actin antibody and scored with immunore active score (IRS). Fibroblast was examined and counted using Hematoxy line-Eosin staining in 5 high power fields.

III. RESULT

Statistically using Wilcox on – Mann Whitney U test, we found a significant decrease in expression of α -SMA in bevacizumab group compared to control group ($p= 0,0195$), and with independent t-test we found less fibroblast in bevacizumab group significantly ($p= 0,0005$). Results can be observed in Table 1 and Table 2. Bleb looked diffuse in the two groups and more a vascular in bevacizumab group.

DISCUSSION

In this research, histopathologically, we found significant decrease in fibroblast count and α -SMA expression that represents myofibroblasts in trabeculectomy site. The decrease in fibroblast and its contractile phenotype (myofibroblast) lead to collagen production decrease that is an important factor to fibrosis. This suggested that even in rabbits with aggressive wound healing response, bevacizumab could give a positive result regarding surgical outcome of trabeculectomy.

Based on histopathology examination, Ozgonul, Mumcuoglu and Gunal stated that inflammation, neovascularization and fibrosis were lower in subconjunctival bevacizumab group. Memarzadeh, *et al.* found significant scar formation and tissue cellularity in day 10 and 20postoperative in subconjunctival bevacizumab group. Previous study did are search on bevacizumab effectivity in inflammation, angiogenesis, and collagen deposition but they found no significant difference in inflammatory cell reaction but reported less neovascularization and collagen deposition significantly (Li *et al.*, 2009; Memarzadeh *et al.*, 2011; Ozgonul, Mumcuoglu and Gunal, 2014).

Antimetabolites like mitomycin-C(MMC) and 5-FU (5-fluorouracyl) are agents that widely used and reviewed regularly in their role of modulating wound healing in glaucoma surgeries as strong antiproliferatives. An *in vitro* study stated that 5-FU induce apoptosis, and MMC affects almost every profibrotic process of conjunctival fibroblast. MMC itself is an antibiotic with antiproliferative component. These agents were proved to reduce proliferation, secretion of collagen and also induce apoptosis. MMC also reduce trans differentiation of fibroblast to myofibroblast. Despite of the effectiveness, their usage is limited by the unfavorable side effects (Zada, Pattamatta and White, 2017).

Clinically and experimentally, corticosteroids were proved to reduce local inflammatory response. A prospective study of trabeculectomy with and without postoperative topical prednisolone in 10-year follow-up resulted in lower intraocular pressure, the use of fewer glaucoma medications, and fewer follow-up surgeries compared with standard treatment alone (Breusegem *et al.*, 2010; Ozgonul, Mumcuoglu and Gunal, 2014; Sudiro, 2017; Zada, Pattamatta and White, 2017).The limitation of this study is: (1)observation period did not include other phase of wound healing

process; (2) bleb evaluation did not completely performed, (3) subjects were not glaucoma models; (4) not comparing bevacizumab with other wound healing modulators (e.g. MMC and 5-FU).

IV. CONCLUSION

In conclusion, subconjunctival bevacizumab in postoperative period significantly inhibits fibrosis through decreasing the number of fibroblast and myofibroblast transformation in trabeculectomy site that play a great role in improving surgical outcome.

REFERENCE

- [1] Breusegem, C. *et al.* (2010) 'Pre-operative nonsteroidal antiinflammatory drug or steroid and outcomes after trabeculectomy: a randomized controlled trial', *Ophthalmology*, 117, pp. 1324–1330.
- [2] Gordon, M. *et al.* (2003) 'The ocular hypertension treatment study: baseline factors that predict the onset of primary open-angle glaucoma', *Arch Ophthalmol.*, 120(4), pp. 16–7.
- [3] Leung, E., Medeiros, F. and Weinreb, R. (2008) 'Prevalence of ocular surface disease in glaucoma patients', *J Glaucoma*, 17, pp. 350–355.
- [4] Li, Z. *et al.* (2009) 'Inhibition of vascular endothelial growth factor reduces scar formation after glaucoma filtration surgery', *Invest Ophthalmol Vis Sci*, 50, pp. 5217–5225.
- [5] Memarzadeh, F. *et al.* (2011) 'Postoperative Use of Bevacizumab as an Antifibrotic Agent in Glaucoma Filtration Surgery in the Rabbit', *Invest Ophthalmol Vis Sci*, 50, pp. 3233–3237.
- [6] O'Neill, E. *et al.* (2010) 'Antifibrotic activity of bevacizumab on human Tenon's fibroblasts in vitro', *Invest Ophthalmol Vis Sci*, 51, pp. 6524–6532.
- [7] Overby, D., Stamer, W. and Johnson, M. (2009) 'The changing paradigm of outflow resistance generation: towards synergistic models of the JCT and inner wall endothelium', *Exp Eye Res*, 88(4), pp. 656–70.
- [8] Ozgonul, C., Mumcuoglu, T. and Gunal, A. (2014) 'The Effect of Bevacizumab on Wound Healing Modulation in an Experimental Trabeculectomy Model', *Current Eye Research*, 39(5), pp. 451–459.
- [9] Park, H., Kim, J. and Park, C. (2013) 'VEGF induces TGF-beta1 expression and myofibroblast transformation after glaucoma surgery', *Am J Pathol*, 182, pp. 2147–2154.
- [10] Quigley, H. and Boman, A. (2006) 'The number of people with glaucoma worldwide in 2010 and 2020', *Br J Ophthalmol*, 90(3), pp. 262–7.
- [11] Stamer, W. and Acott, T. (2012) 'Current understanding of conventional outflow dysfunction in glaucoma', *Curr Opin Ophthalmol*, 23(2), pp. 135–43.
- [12] Sudiro, D. (2017) *Effect of Triamcinolone acetonide on TGF-β expression post-trabeculectomy (Experimental Study on Oryctolagus cuniculus)*. Faculty of Medicine/ Dr. Soetomo General Hospital Surabaya.
- [13] Zada, M., Pattamatta, U. and White, A. (2017) 'Modulation of Fibroblasts in Conjunctival Wound Healing', *Ophthalmology*, 12, pp. 1–14.



Figure 1: Bleb evaluation day 7: **A.** control group; **B.** bevacizumab group; and day 14: **C.** control group; **D.** bevacizumab group.

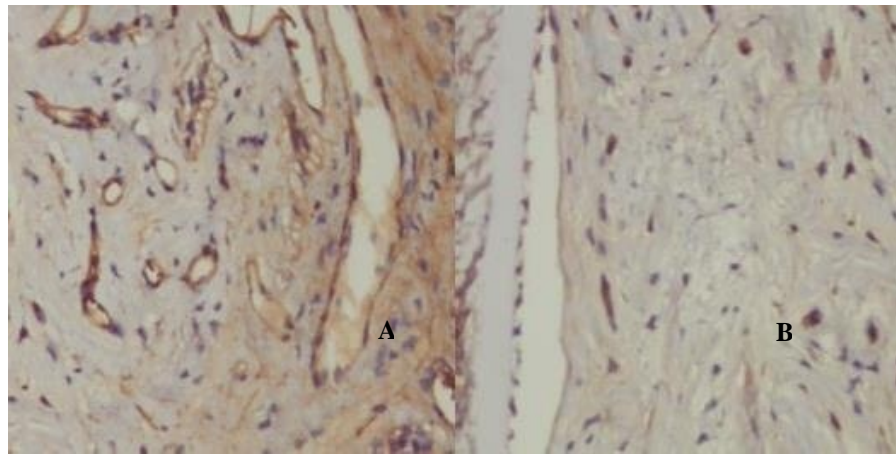


Figure 2: Alpha SMA expression in: **A.** control group; **B.** Bevacizumab group

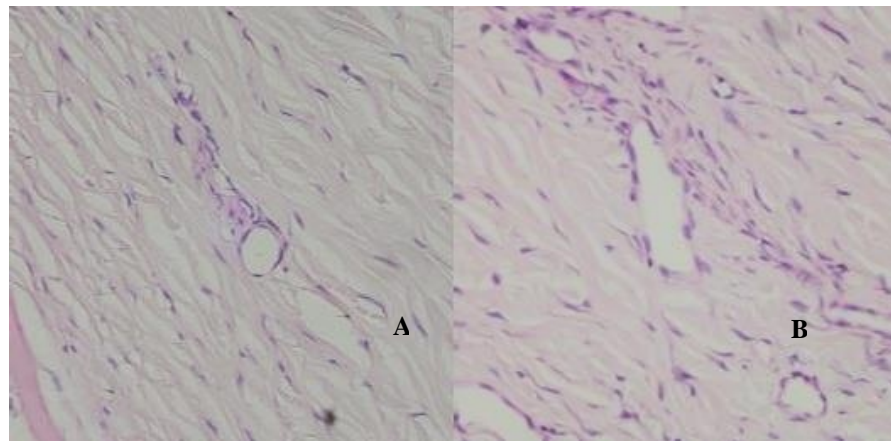


Figure 3: Fibroblast count in: **A.** control group; **B.** Bevacizumab group

Table 1. Alpha SMA in control group and bevacizumab group

Groups	n	α -SMA expression (IRS)				Wilcoxon - Mann Whitney test (p1- tailed)
		Media n	IQD	Min	Max	
Control	8	5.0	1.5	2	6	0.0195*
Bevacizumab	8	2.5	1.0	1	6	

Significant at $\alpha=0.05$ (p <0.05)

Table 1: Alpha SMA in control group and bevacizumab group

Groups	n	α -SMA expression (IRS)				Independent t-test (p1-tailed)
		Mean	SD	Min	Max	
Control	8	40.48	2.66	36.2 0	45.0 0	0.0005*
Bevacizumab	8	34.78	2.81	31.8 0	39.2 0	

Significant at $\alpha=0.05$ (p <0.05)