

Dear Doctor,

Greetings from Micro Labs Limited. We are happy to bring you '**Ophthalmal Focus**' which contains latest and interesting news in the field of Ophthalmology.

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- Tacrolimus ointment for refractory ocular surface inflammation in paediatric patients
- Proliferative diabetic retinopathy: Observation of retinal neovascularization using optical coherence tomography angiography after panretinal photocoagulation
- Peripapillary retinoschisis in glaucoma

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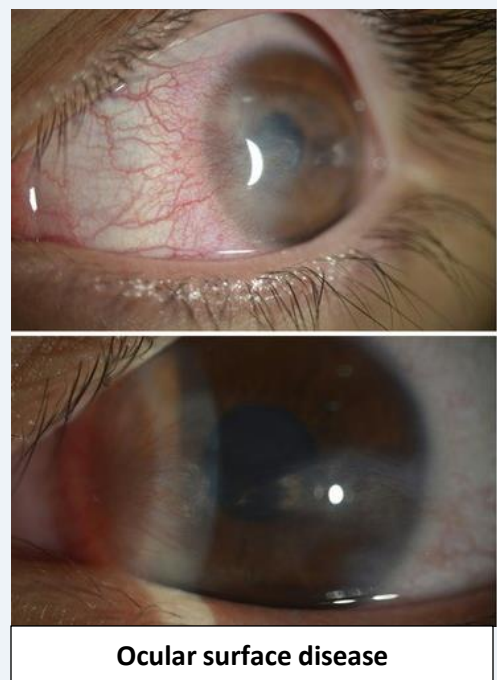
Best Regards,
Medical Team, Micro Labs Limited

Tacrolimus ointment for refractory ocular surface inflammation in paediatric patients

Background: The ocular surface inflammation management requires intense immunosuppression. Tacrolimus is a nonsteroidal macrolide immunosuppressant which is isolated from *Streptomyces tsukubaensis*. It is known to be 30 ~ 100 times more powerful than cyclosporine.

Objective: The study aimed at evaluating the efficacy and safety of topical 0.02 % tacrolimus ointment in paediatric subjects with ocular surface inflammation refractory to conventional therapy.

Methods: In this retrospective study medical records of the paediatric subjects prescribed with topical 0.02 % tacrolimus ointment for refractory ocular surface inflammation were reviewed. Demographic data such as diagnosis, systemic disease, clinical features, uncorrected visual acuity (UCVA), best corrected visual acuity (BCVA), intraocular pressure (IOP), disease severity, steroid score, and any adverse reaction information were taken at the beginning of each follow-up. The primary measure of treatment efficacy was a decrease in the



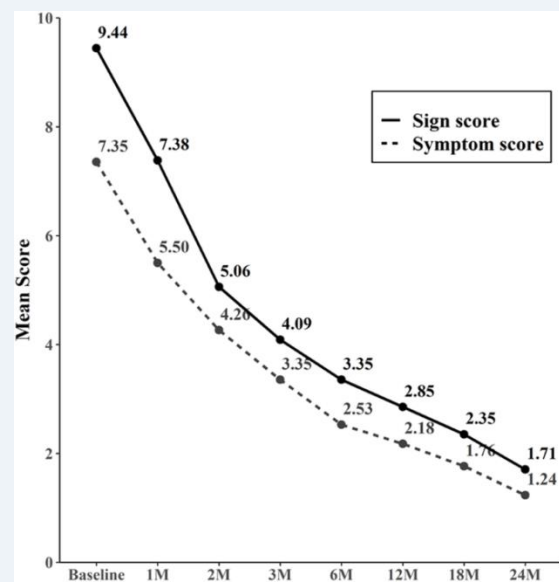
composite score of symptoms and signs and were compared between baseline and after treatment. Portable slit lamp was used to perform slit lamp examination. Steroid was scored on a scale of 0 to 4 in which 0 indicated steroid is not necessary and 1 indicates use of 0.1% topical fluorometholone, 2 indicates the use of 0.12% topical prednisone acetate, 3 indicates the use of 1% topical prednisone acetate, and 4 indicates the use of systemic steroids with or without concurrent topical

prednisone acetate of 1%. Topical 0.02% tacrolimus ointment about the size of a rice grain was put into the conjunctival sac twice a day.

Results: Out of 72 subjects prescribed with topical 0.02% tacrolimus ointment for refractory ocular surface inflammation with a mean age of 10.8 ± 3.9 years, ranging 3 to 17 years, 7 subjects lost during the follow-up and painful burning sensation observed in 6 patients and were withdrawn from tacrolimus treatment. 25 subjects fully recovered which resulted in discontinuing the tacrolimus ointment. In this group mean duration of using the tacrolimus ointment was 3.61 ± 2.45 months (range 1 to 8 months) and 34 subjects were treated with tacrolimus ointment for 12 months or more. During the follow-up no corneal deposits, subepithelial keratitis, ocular surface staining, IOP elevation, infections or any side effects other than burning sensation were observed.

The diagnosis of 65 subjects (7 subjects lost during the follow-up were excluded) were divided into Atopic keratoconjunctivitis (AKC-46%), followed by vernal keratoconjunctivitis (VKC-35%), Chronic ocular Graft-versus-host disease (GVHD -15%) and phlyctenular keratoconjunctivitis (PKC-3%). Stevens-Johnson syndrome (SJS) and ocular cicatricial pemphigoid (OCP) each accounted for 1%. There was no

significant difference in the UCVA, BCVA, and mean IOP between before and after the treatment of 34 patients with a follow-up period of 12 months or longer. Total sign score significantly decreased 1 month after initiation of topical tacrolimus ointment in all disease groups. Total symptom score also showed a significant



Comparison of overall symptom and sign score during the follow-up period. Both scores decrease during the treatment period

decrease from baseline 4 weeks after initiation of topical tacrolimus ointment in all disease groups.

During the follow-up, eyes receiving adjunctive topical steroid treatment decreased to 82% at 2 months and 47% at 6 months. The percentage of eyes with adjunctive 1% prednisone was 41, 29, and 6% at 1, 2, and 6 months, respectively. At 1, 2, and 6 months the percentage of eyes with adjunctive 0.1% fluorometholone eye drops was 32, 29, and 24%. More than half of the total subjects were treated with tacrolimus alone, successfully weaned off topical steroids at 6 months.

Conclusion: Topical 0.02% ointment long-term treatment is safe and effective in refractory ocular surface inflammation in paediatric subjects.

Reference: Koh K, Jun I, Kim EK, Seo KY. Long-term results of topical 0.02% tacrolimus ointment for refractory ocular surface inflammation in pediatric patients. BMC Ophthalmology. 2021 June;21(1):1-7.

Proliferative diabetic retinopathy: Observation of retinal neovascularization using optical coherence tomography angiography after panretinal photocoagulation

Background: Diabetic retinopathy (DR) is the leading cause of visual impairment and blindness. It is responsible for vision loss in Diabetic patients.

Objective: The study aimed at assessing short term and long term effects of panretinal photocoagulation (PRP) in regressing retinal neovascularization , and optical coherence tomography angiography (OCTA) was performed to quantify and monitor the neovascularization elsewhere (NVE) changes over time in response to the panretinal photocoagulation treatment.

Methods: In this prospective study each subject included were newly diagnosed with proliferative diabetic retinopathy (PDR) and retinal neovascularization elsewhere (NVE) which was confirmed by fundus fluorescein angiography (FFA) and optical coherence tomography angiography (OCTA). The subjects received panretinal photocoagulation (PRP) in 4 sessions with an interval of 1 week

between sessions. Subjects underwent ophthalmic examinations best-corrected visual acuity (BCVA), intraocular pressure, slit-lamp biomicroscopy, indirect ophthalmoscopy and an OCTA examination. At 1 month, 3 months, and 6 months after the panretinal photocoagulation treatment, Best-corrected visual acuity (BCVA) and OCTA images of the NVE were obtained before each PRP session. The differences between the BCVA and NVE areas were investigated before and after PRP using Generalized estimating equations (GEE).

Results: A total of 32 subjects with a mean age of 50.56 ± 7.05 years were enrolled in this study. 12 eyes were high-risk PDR at baseline and none of the patients had vitreous haemorrhages or other complications during the treatment.

	Mean NVE area	ICC between observers	P-value
Baseline	1.448 ± 1.101	0.927	--
Post-1st PRP	1.297 ± 0.942	0.912	0.0004
Post-2nd PRP	1.268 ± 0.897	0.938	0.9906
Post-3rd PRP	1.206 ± 0.880	0.918	0.4447
1 months	1.172 ± 0.842	0.963	0.9685
3 months	1.121 ± 0.790	0.921	0.3384
6 months	1.155 ± 0.769	0.931	0.7951

The difference in the mean NVE area in comparison with the previous time

A statistically significant reduction in NVE size was observed at all-time points compared with the baseline. Further analysis showed that change in the neovascularization elsewhere (NVE) area was statistically significant from baseline to post-1st PRP. Statistically significant improvement was observed in BCVA at 3 months.

Conclusion: This study showed an overall regression of the retinal neovascularization elsewhere (NVE) area following panretinal photocoagulation treatment in subjects with proliferative diabetic retinopathy, which started 1 week

after the first session and lasted for at least 3 months. Optical coherence tomography angiography provided quantitative information on vascular changes and may play an important role in monitoring the efficacy of treatment regimens in these subjects.

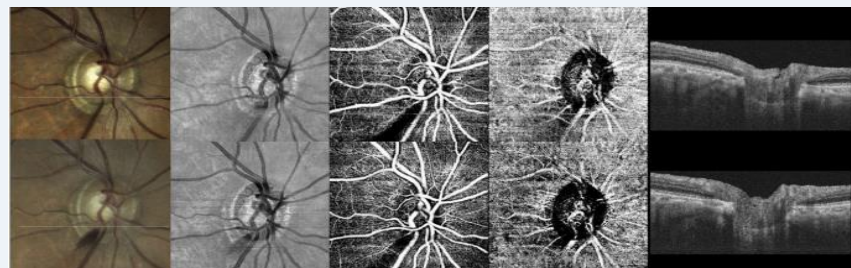
Reference: He F, Dong F, Yu W. Observation of Retinal Neovascularization using Optical Coherence Tomography Angiography after Panretinal Photocoagulation for Proliferative Diabetic Retinopathy. 2021 June 21:252

Peripapillary retinoschisis in glaucoma

Patient description: A 70-year-old man with high intraocular pressure was referred to the glaucoma clinic. Baseline study revealed that IOP was 30 mmHg, and peripapillary retinoschisis was discovered at 7 o'clock at the periphery of the optic nerve with swept-source optical coherence tomography (OCT).

Retinal nerve fiber layer (RNFL) defects were observed in the inferotemporal part with red-free fundus photography. Gonioscopic examination revealed that there was no peripheral anterior synechiae and widely opened angle was observed.

Latanoprost
ophthalmic
solution was
prescribed based
on the suspicion
of open-angle
glaucoma.
Intraocular
pressure was



Serial disc photographs (first column), en-face images (second column), superficial capillary plexus of OCT-angiography (third column), deep choroidal layer of OCT-angiography (fourth column), and swept-source optical coherence tomography images (fifth column) of the optic disc

normalized. After 8 months the IOP was 17 mmHg, and the peripapillary retinoschisis had disappeared. In the inferotemporal area Disc hemorrhage (DH) was observed in the same direction as the previous peripapillary retinoschisis.

Optic nerve head, multimodal imaging, including en-face image and OCT-angiography, was performed to evaluate the structural changes and blood flow

status. A decrease in the vessel density of the superficial layer along with the RNFL defect was stationary, and the inferotemporal choroidal vascular dropout did not progress. Peripapillary and macular OCT-angiography revealed that there were no signs of deep vascular structure associated with the subretinal neovascular membrane

Conclusion: The changes in retinoschisis was not continuously observed during the two follow-up visits. Hence it is difficult to conclude that Disc hemorrhage has a direct causal relationship with peripapillary retinoschisis. The case of Disc hemorrhage following peripapillary retinoschisis in the same glaucomatous eye may demonstrate the possible pathophysiology and the relationship between these two phenomena in glaucoma.

Reference: Won June Lee and Mincheol Seong. Disc hemorrhage following peripapillary retinoschisis in glaucoma: a case report. BMC ophthalmology. 2021 June 21:253



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