ophthal Focus

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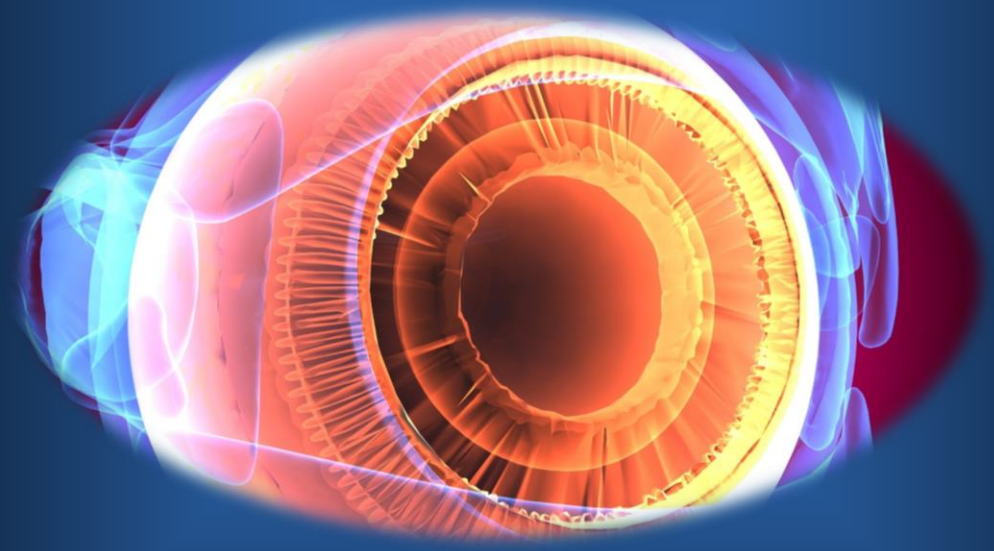


Dear Doctor,

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

This issue contains

- Improving Tolerance and Compliance with Topical Immunomodulators Using Micro-Emulsion Lipid Layer Artificial Tears
- Macular and Peripapillary OCTA Metrics Predict Progression in Diabetic Retinopathy: A Sub-analysis of TIME-2b Study Data
- Complications of Orbital Emphysema in a COVID-19 Patient

Should you require any specific article or medical information, please feel free to contact us at medicalservices@microlabs.in

Looking forward to your valuable feedback

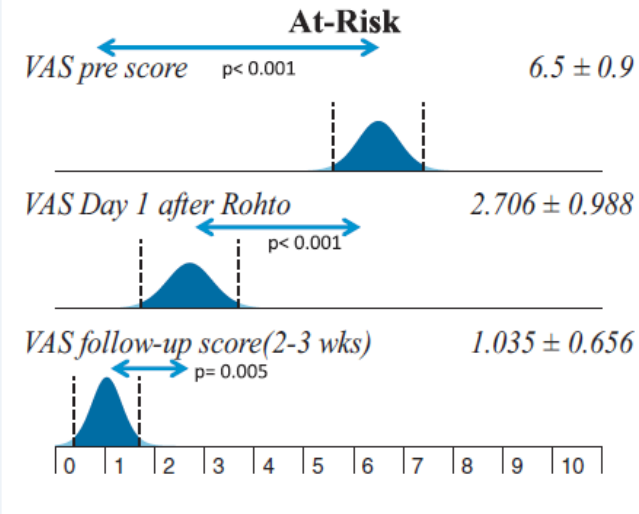
Best Regards,

Medical Team, Micro Labs Limited

Improving Tolerance and Compliance with Topical Immunomodulators Using Micro-Emulsion Lipid Layer Artificial Tears

The efficacy of topical ocular pharmacotherapy depends on patients' adherence and compliance with the prescribed treatment regimen. It is well established that patient compliance with prescribed topical ophthalmic drops is poor and can be a major impediment to effective treatment. This may be due to a combination of factors including burning or discomfort with instillation of drops, physical limitations (ie poor dexterity, tremor) or patients forgetting to instill them. In certain conditions such as glaucoma, the cost of non-compliance can be high with possible progressive vision loss and eventual blindness. In other conditions such as dry eye disease (DED), non-compliance can diminish patients' quality of vision, productivity, quality of life, and increase frustration with continuing symptoms. The difficulty in finding a safe, long-term adjunctive eye drop to improve tolerance and prevent non-compliance. Micro-

The micro-emulsion lipid layer artificial tear was effective as an adjunctive eye drop to improve tolerance

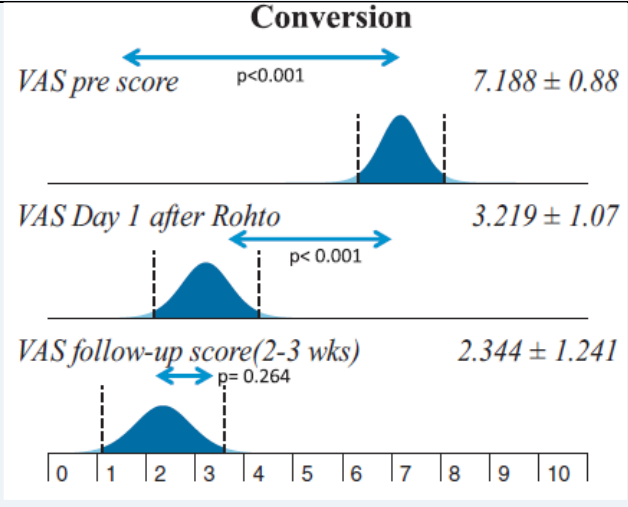


VAS scores by subject group. VAS scores over time for subjects in the at risk

emulsion (ME) lipid layer artificial tears (Rohto Dry-Aid; The Mentholatum Company, Orchard Park, NY) with active ingredients Povidone 0.68% and propylene glycol 0.3% as lubricants have a purported cooling effect on the ocular surface (via the inactive ingredient menthol). The study was conducted to investigate the efficacy of a micro-emulsion (ME) lipid layer artificial tear in improving tolerance of immunomodulator eye drops for the treatment of dry eye disease.

A total of 33 patients with previously diagnosed dry eye disease were given the micro-emulsion lipid layer artificial tear in conjunction with either lifitegrast or cyclosporine. Patients were queried on their tolerance of the regimen by reporting VAS scores before starting the adjunctive eye drop, immediately after starting, and 2–3 weeks later. Tolerance was statistically compared over time and with respect to previous medication

compliance, timing of the adjunctive eye drop, age, gender, and ethnicity.



VAS scores by subject group. VAS scores over time for subjects in conversion groups.

Across all patients, the VAS pre-treatment score (6.8 ± 0.6) was significantly higher than both the VAS 1-day post ME lipid tear instillation time point (3.0 ± 0.7) (post hoc Bonferroni, $p < 0.001$) and the VAS 2–3-week post instillation time point (1.7 ± 0.7) (post hoc Bonferroni, $p < 0.001$), with the mean VAS score improving over time (post hoc Bonferroni, $p < 0.028$). Average VAS scores did not vary with respect to specific medical therapy or the timing of instillation of this artificial tear.

Both the “at-risk” and “conversion” groups independently had significant improvements at both 1-day and 2–3-week time points compared to baseline. The micro-emulsion lipid layer artificial tear was effective as an adjunctive eye drop to improve tolerance of lifitegrast and cyclosporine for patients with dry eye disease who were at risk of failing or had previously failed immunomodulatory therapy.

Source: Epitropoulos AT et al. Clinical Ophthalmol 2020:14 1921–1929.

Macular and Peripapillary OCTA Metrics Predict Progression in Diabetic Retinopathy: A Sub-analysis of TIME-2b Study Data

Diabetic retinopathy (DR) is the most common complication of diabetes mellitus. Natural progression of the disease leads to sight threatening complications of macular edema and vascular proliferation, making DR the leading cause of blindness among working-age adults in the developed world. Due to the disease’s devastating complications, patients with DR require close surveillance by eye care providers. Currently, DR severity established by color fundus photography (CFP) is used to assess progression risk.4However, sight threatening complications of proliferative diabetic retinopathy (PDR) and diabetic macular edema (DME) also occur in patients with more benign fundus appearance. Identifying patients at increased risk of progression would allow health care resources to be focused on this group and would reduce the follow-up burden for patients with more stable disease.

FAZ area and temporal peripapillary VD are predictors of DR progression.

This secondary analysis was done to identify optical coherence tomography angiography (OCTA) derived vessel metrics of the macula and

optic nerve head (ONH) that predict diabetic retinopathy (DR) disease progression. This was a sub-analysis of prospectively collected data from 73 subjects that participated in the TIME-2b Study (Aerpio Pharmaceuticals), a multi-center clinical trial for patients with moderate to severe DR treated with AKB-9778 and followed over a 12-month period.

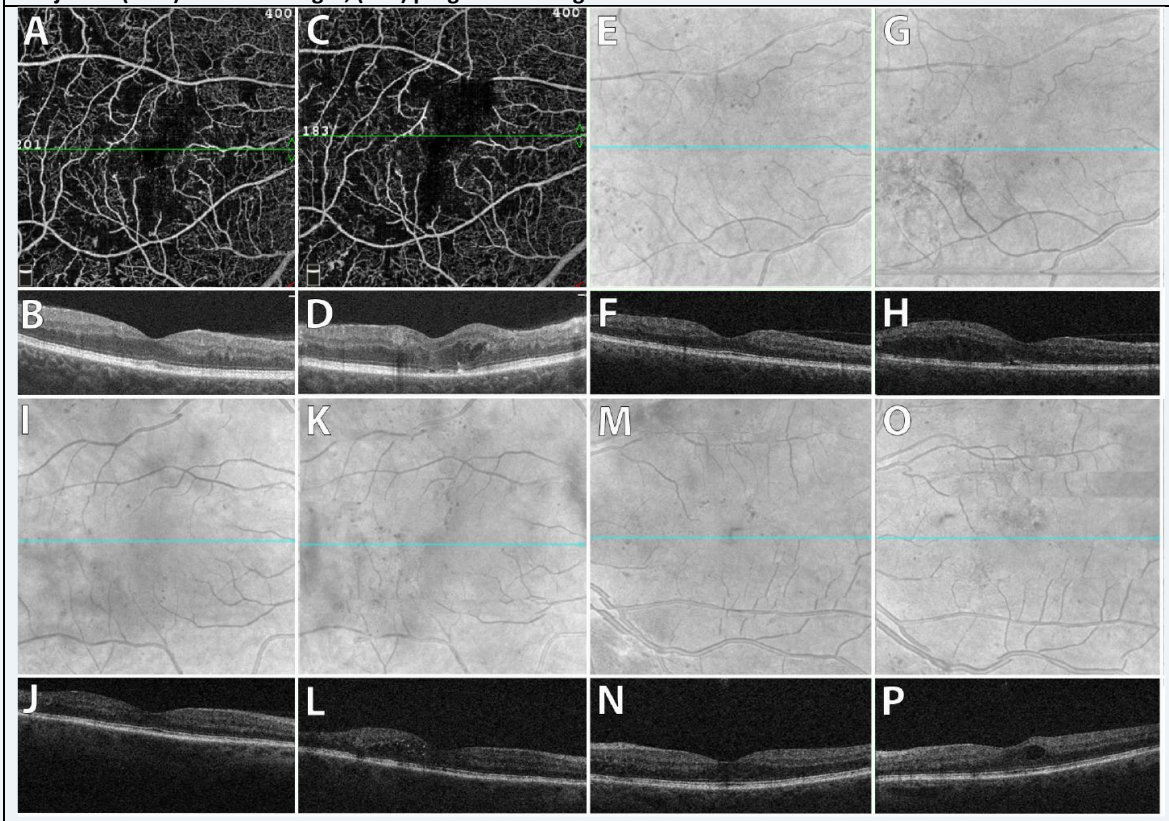
OCTA Metric Added	*Standard Model AUC*	*Standard Model + Metric AUC*	*p-value*
FAZ Area	0.72	0.78	***0.041****
Superior Temporal Vessel Density	0.72	0.84	***0.019****
Inferior Temporal Vessel Density	0.72	0.81	***0.032****

Table: Area Under the Curve Analysis for Predictive Models

Eligible subjects were tested every 3 months with color fundus photography, spectral domain OCT and slit-lamp biomicroscopy. OCTA of the macula and ONH was obtained for a subset of patients enrolled at participating sites. En-face, full-depth retinal projections centered at the macula were analyzed for multiple metrics including foveal avascular zone (FAZ) area and perimeter, non-perfusion area, vessel density (VD) and presence of intraretinal microvascular abnormalities (IRMA). VD of the radial peripapillary capillaries was evaluated in four quadrants surrounding the optic disc for ONH images. Progression was defined as a ≥2- step increase in DR severity scale score or development of diabetic macular edema.

Over a follow-up period of 12 months, 15 of 73 (20.5%) subjects progressed. At pretreatment baseline, larger FAZ area, presence of IRMA, and reduced peripapillary VD in the superior temporal and inferior temporal regions were significantly associated with increased odds of progression. FAZ area and temporal peripapillary VD are predictors of DR progression. OCTA metrics may improve progression risk assessment in DR when compared to established risk factors alone.

Examples of Diabetic Macular Edema Progressors. En-face image and associated 1 B-scan at baseline and time of progression are shown for 4 DME progressors. Subject 1: (A-B) baseline images, (C3 D) progression images. Subject 2: (E-F) baseline images, (G-H) progression images. Subject 3: (I-J) baseline images, (K-L) progression images. Subject 4: (M-N) baseline images, (O-P) progression images.

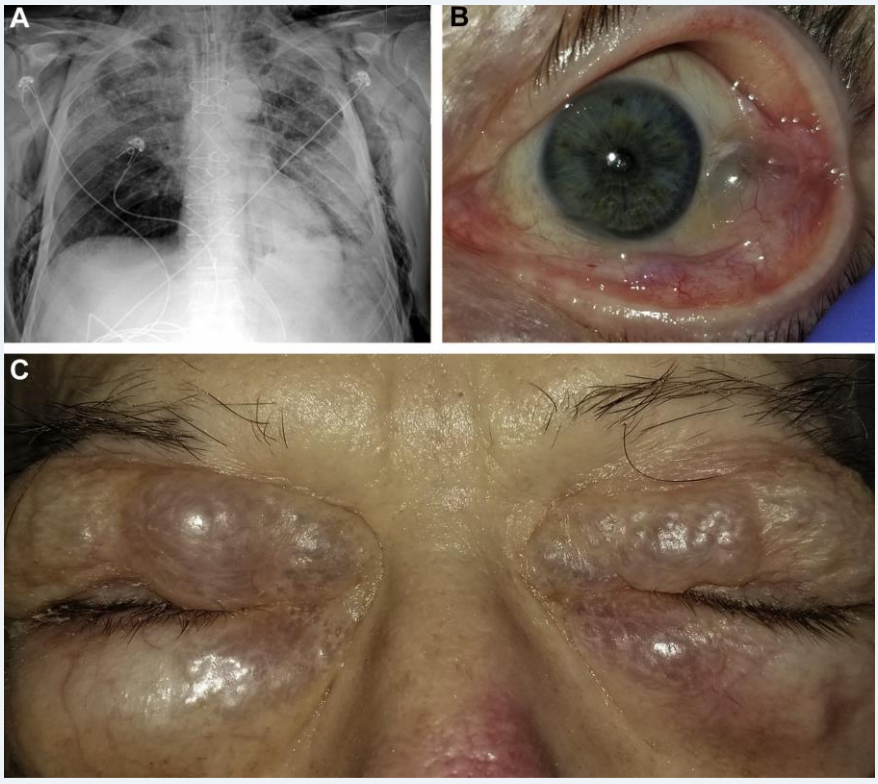


Source: Greig EC et al. American J Ophthal. 2020. [online ahead of print] https://doi.org/10.1016/j.ajo.2020.06.009

Complications of Orbital Emphysema in a COVID-19 Patient

A 74-year-old man presented with a 10-day history of fever, cough, and progressive dyspnea. The patient was diagnosed with severe pneumonia related to COVID-19, after a positive polymerase chain reaction test and radiographic imaging (Fig A). The hospital course was complicated by respiratory failure requiring orotracheal intubation. Refractory hypoxia prompted increased levels of positive end-expiratory pressure (up to 18 cm

H2O) and prone positioning. Upon supination, subcutaneous emphysema extended from the chest to the face, unilaterally in the conjunctiva (Fig B), and bilaterally around the eyelids (Fig C). Complete ophthalmologic examination did not reveal any evidence of orbital compartment syndrome or vascular occlusion.



Source: Stevens DV et al. Ophthalmology. 2020 Jul;127(7):990. doi: 10.1016/j.ophtha.2020.05.011.