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- **08** Experts convened on how to tackle blindness prevention beyond 2020.
- **10** The future of monofocals, redefined.
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# VIDEO DIDN'T KILL THE TELEMEDICINE STAR



hen the television was first created by Scottish inventor John Logie Baird, people dismissed it as a passing fad and a novelty. Slowly, but surely, this strange and somewhat insidious new technology became more and more common — and eventually, it became a normal household item. Arguably and we're stressing that word here — one of television's biggest moments was the launch of

MTV, and we're all familiar with a certain song about that...

Fast forward to today, and television's distant descendent: telemedicine, something that's been on our lips almost constantly for the last 18 months thanks to COVID-19. Shuttered clinics and lockdowns meant the medical community had to experiment with how to offer consultations and monitor patients. Video may have killed the radio star (as sung by The Buggles), but telemedicine's impact is generally recognized to be of tremendous benefit to clinicians and patients alike.

# Wisdom from the Athens of the north

The AOI Symposium: Improving Education and Care by Telemedicine was one of the seminars running on Day 6 of the 36th Asia-Pacific Academy of **Ophthalmology Virtual Congress (APAO** 2021), and it offered great insight into some of the lessons learned regarding telemedicine during COVID-19. As part of the symposium, we heard from the former CEO of Allergan, David Pyott, who spoke about his alma mater's (the University of Edinburgh in Scotland) work in expanding the range of telemedicine services available to ophthalmologists. Dr. Pyott also donated to the University of Edinburgh to create the David E.I. Pyott Master of Surgery in Clinical **Ophthalmology Scholarship, kudos!** 

On to the lessons of telemedicine though, and as you can imagine, geographical location plays a considerable role in how patients are able to access treatment. We heard from Dr. Anthony Vipin Das, a consultant ophthalmologist at the LV Prasad Eye Institute (Hyderabad, India), who described the lessons he learned about telemedicine during the pandemic. His presentation, *Telemedicine*  and Telediagnosis at the LV Prasad, focused particularly on the acute differences between treating patients via telemedicine in rural and urban locations.

"On telemedicine, geographical location plays a considerable role in how patients are able to access treatment."

### — Dr. Anthony Vipin Das, Consultant Ophthalmologist, LV Prasad Eye Institute, India

Dr. Das said that his institute recognized that rural patients had different telemedicine needs and reacted accordingly by providing the Village Vision Complex. This dedicated process included the eyeSmart EMR app designed to access electronic medical records (EMRs), and facilitated over 110,000 tele-consultations via Skype and through 200 dedicated village vision centers. He emphasized the importance of highquality EMRs to this system, and that any telemedicine process must include access to EMRs.

### **Triaging by telemedicine**

By contrast, the telemedicine requirements of patients in the United



Kingdom would naturally differ from those patients living in rural India, and we also heard from a doctor working at the prestigious Moorfields Eye Hospital in London. Dr. Renata Puertas, a glaucoma specialist at the same hospital, presented *The Effect of Telemedicine on the Glaucoma Service at Moorfields*. Her report shed light on the telemedicine system the U.K.'s National Health Service (NHS) had in place before COVID-19, and how the institution adapted to the pandemic.

Dr. Puertas revealed that by splitting patients into three telemedicine consultation categories, — namely consultant-led, technician-delivered and optometrist-driven — the triage process for patients could be optimized. This, she pointed out, was absolutely essential given that there are only 1,500 ophthalmologists working in the U.K. at present, and this move also led to a quicker road to treatment and diagnosis, thus improving patient outcomes. Indeed, she said that under this system, 97% of patients reported that they were satisfied with the quality of care they received.

# Videos from the past (like the Buggles)

An interesting part of the symposium worth noting was the transformative role telemedicine has in education, as well as in patient treatment. This was the purpose of Evaluation of the Effectiveness of E-Learning by Dr. Wai Kit Chu, an associate professor at the Chinese University of Hong Kong. Dr. Chu reported that 60% of his students reported that tele-learning was "a very good way to learn" and that his University's whole learning system has markedly improved. Considering that, according to the doctor, most learning videos were made in the 1980s — so, we can imagine how much of an improvement this represents.

This session will be posted on the PAO 2021 Virtual portal for on-demand viewing in the near future — and is likely to be very valuable to those wanting to learn how to optimize their telemedicine services. You should also visit the *PIE* and *CAKE* websites, as we have previously covered this topic in great detail ... indeed, it was almost as if we were glued to television screens for a while. Remember, when it comes to telemedicine: "in my mind and in your car, we can't rewind, we've gone too far..."

# The Ocular Microbiome

Bacterial Round-up by Sam McCommon



/Prof. Vilavun Puangsricharern, from Chulalongkorn University Bangkok, Thailand, led us into the fascinating world of the ocular microbiome. We learned of the microbiome's role in both ocular health and diseases, which has only recently begun to garner attention.

# A growing understanding of the ocular microbiome

As A/Prof.Puangsricharern pointed out, the human microbiome in general especially the gut microbiome — has been the subject of a substantial and increasing amount of papers since around the mid-2000s. There are now tens of thousands of articles on the subject, and it's much better understood than it was 20 years ago.

The ocular biome, by comparison, has received scant attention — and that attention only began in the last several years. While there are tens of thousands of studies on the human microbiome in total, there are only several dozen on the ocular microbiome.

We now know the microbiome plays

a huge role in essentially all aspects of the human body. The gut microbiome — via the gut-brain axis— is related to all sorts of non-ocular diseases, but it's related to ocular diseases, too. A/Prof. Puangsricharern suggested that gut microbiome alteration may lead to conditions like keratitis, glaucoma, AMD, dry eye/Sjogren's syndrome and uveitis.

So what factors affect the ocular microbiome? The two biggest factors appear to be age and seasonal change. Sex, ethnicity and geographic differences seem to play little role in the microbiome.

# What bacteria are good bacteria, doc?

We know we need bacteria, but we also know bacteria can be harmful. A/Prof. Puangsricharern told us that there are generally four main phylum of bacteria present in a healthy ocular microbiome: actinobacteria (53%), proteobacteria (39%), firmicutes (8%), and bacteroidetes (not many). The taxa-abundance at the phyla level looks different, however. In healthy individuals, proteobacteria dominated, at 69%. Among those, six major genera play a role in change in health and diseases:

- Corynebacterium (actinobacteria) is associated with an increase in blepharitis and trachoma
- Staphylococcus (firmicute) is associated in an increase in blepharitis and decreases in contact lens (CL) wearers
- Streptococcus (firmicute) is associated with an increase in trachoma and decreases in CL wearers
- Propionibacterium (actinobacteria) is associated with a decrease in blepharitis
- Pseudomonas (proteobacteria) tends to increase in CL wearers and is associated with keratitis
- Actinetobacter (proteobacteria) also tends to increase in CL wearers, and is associated with keratitis and diabetes

# Bacteria and ocular disorders

A/Prof. Puangsricharern shared some fascinating insight on the role of bacteria in meibomian gland dysfunction (MGD). As she pointed out,

severe MGD has a distinct bacterial cluster in the conjunctival sac compared to other groups. At the phylum level, a relative abundance of firmicutes and a higher number of proteobacteria were present compared to a lower level of actinobacteria.

At the genus level, staphylococcus and sphingomonas were higher and corynebacteria was lower in MGD. Overall, a meiboscore is positively correlated with an abundance of staphylococcus. Severe MGD was positively correlated with a higher isolation rate, a greater number of species, and a high grade of bacterial severity.

Right now we're just scratching the surface of the role of the ocular microbiome. A/Prof. Puangsricharern calls for more research, and we'd have to agree, as therapeutic solutions may present themselves upon further study.

# Laser Treatment Trends in Glaucoma and Retina by Sam McCommon

ay 6 of the 36th Asia-Pacific Academy of Ophthalmology Virtual Congress (APAO 2021) hosted a laser-sharp discussion on ... well, laser treatments. Covering developments in glaucoma and retina, the four panelists shared their laser-focus and cutting insights to help us and our fellows in the ophthalmic field grasp the intricacies of these practices.

These four brilliant panelists were:

- Dr. Jimmy Lai, from the University of Hong Kong
- Dr. Jaromir Wasyluk, from the Department of Ophthalmology at the Military Institute of Aviation Medicine (writer's note: way cool) and Optimum Eye Center in Warsaw, Poland
- Dr. Victor Chong, from London Medical and Royal Free Hospital, London in the United Kingdom.

• Dr. Kenneth Fong, a consultant ophthalmologist and vitreoretinal surgeon at OasisEye Specialists in Kuala Lumpur, Malaysia

With no further ado, we'll start with laser treatments for glaucoma, and then move to the retina discussion.

# SLT laser treatment: New data

Dr. Jimmy Lai kicked off the discussion with updates on selective laser trabeculoplasty (SLT). SLT has been making news since the LiGHT study came out in 2019, and many are proposing that SLT can be a first-line treatment for openangle glaucoma.

As Dr. Lai noted, SLT has numerous advantages. It reduces IOP with a single, painless outpatient laser procedure, and has minimal recovery time. It has a good safety profile, is easy to use, and is repeatable. It also offers similar IOP reduction to prostaglandin analog (PGA) monotherapy or even combination therapies.

The laser used in modern SLT has come a long way, and does very little damage to the trabecular meshwork. With a spot diameter of 400  $\mu$ m and a pulse duration of 3-4 ns, the energy deposited in the target will be contained inside the target tissue rather than diffusing out and damaging nearby tissue.

SLT may decrease diurnal IOP fluctuation in addition to reducing IOP, though as Dr. Lai pointed out, it's likely most effective for early and advanced glaucoma, and may not be effective in certain forms of glaucoma. For reference, it was inefficient in up to 35% of eyes.

While the IOP-lowering effect can decrease over time, because the



treatment is repeatable and low-risk, this reduction does not present a serious constraint.

Doctors can look at predictors of a positive SLT response in a few areas: First a positive PGA response may predict both SLT outcomes and the magnitude of IOP reduction. IOP reduction is not reduced by pre-laser use of PGA. Second, a higher baseline IOP may make patients viable candidates for SLT, with greater reduction if there is a positive response. Third, doctors can test SLT on one eye first to see how a patient responds to the treatment; success in one eye usually means the second eye will be successful as well.

Dr. Lai noted that patients should be off their glaucoma meds for at least 3 days before the treatment. There may be an IOP spike at 1-2 hours past treatment, and doctors should observe patients for around 4 weeks. At 36 months, 74.2% of patients in the LiGHT study needed no eye drops to maintain their IOP at target level. That's pretty darn good.

# SubCyclo: A safe alternative to glaucoma surgery?

Dr. Jaromir Wasyluk shared his wisdom on SubCyclo laser treatments. For reference, SubCyclo means subliminal transscleral cyclophotocoagulation (TS-CPC), and can be performed with the Quantel Medical (Cournon d'Auvergne, France) Vitra 810<sup>™</sup>.

Compared to thermal-based CPC, SubCyclo uses pulses rather than a continuous beam, with a duty cycle of 31.3% as opposed to the 100% of the thermal-based system. As Dr. Wasyluk said, SubCyclo induces the uveo-scleral aqueous pathway by ciliary body remodeling. It selectively impairs ciliary body pigmented epithelium, and is repeatable because there's no ciliary body thermocoagulation. There's also no significant pain or inflammation post treatment, and has a broader spectrum of indications beyond "last chance" therapy.

Patients that benefit the most from SubCyclo would be patients with moderate to advanced glaucoma, refractory glaucoma that's drug resistant or with high IOP, patients with intolerance to topical medications, and those with previous surgical failures or anticipated surgical problems, especially secondary glaucomas.

It can also be valuable for patients who aren't keen on incisional surgery or, indeed, as a last resort or palliative therapy. It can also be a separate procedure or combined with phaco as an alternative to trabeculectomy.

When using the laser, Dr. Wasyluk advises doctors to move the tip in a continuous sliding motion, from 9:30 to 12:00 and from 12:00 to 2:30, and similar in the inferior quadrants. He noted that the 3 and 9 o'clock meridians must be avoided.

The treatment should be considered a second-line treatment, said Dr. Wasyluk. While medications and SLT can be the first line, SubCyclo can be the next line of glaucoma treatment.

### Macular laser photocoagulation: Still relevant in 2021?

Dr. Victor Chong asked the question in the heading above, and it's a valid question. With so many treatment options in 2021, are lasers still a viable treatment for diabetic macular edema (DME)?

The short answer is yes, but of course there's more to it than just that. As Dr. Chong pointed out, the majority of patients from one U.S. study comparing anti-VEGF agents to lasers noted that a majority of DME patients had received at least one focal or grid laser treatment through one year. Of those, bevacizumab patients had the highest rate at 56%, with ranibizumab patients at 46% and aflibercept patients at 37%.

So, laser treatment is still carried out in the majority of DME patients in the United States. There's that for a start.

But who should be treated with lasers? Dr. Chong suggested that a combination of laser and anti-VEGF treatment in treatment-naive patients showed a slightly better outcome than either treatment alone. Additionally, in DME patients that still have very good vision — 20/25 or better — laser treatment can reduce the need for anti-VEGF treatment. For example, a study shared by Dr. Chong showed that laser treatment reduced the risk of aflibercept injection by 34%.

Dr. Chong also noted the potential benefits of subliminal lasers, as delivery of the laser energy in pulses leads to less collateral retinal damage and no visible scarring. Using subliminal lasers may further improve the outcomes of DME patients — good news for all.

# Subliminal laser therapy for macular diseases

Our good friend Dr. Kenneth Fong wrapped up the discussion with a dive into subliminal laser therapy for macular diseases. He focused on the technical side of the procedure, so if you're looking for numbers this is where your ears should perk up.

The duty cycle — mentioned earlier in this article — represents the difference between the on time and off time of a laser pulse. For example, if a laser pulses for 100  $\mu$ s and is off for 1900  $\mu$ s, the duty cycle is 5%. Allowing for time between pulses allows energy to remain concentrated in the tissue that should be targeted rather than diffusing out into adjacent tissue and causing collateral damage.

Dr. Fong pointed out that SubLiminal laser therapy offers a similar efficacy to classic laser photocoagulation while preserving the retinal tissue. This same therapy is known to have a durable effect and can be combined with intravitreal therapies like injections of implants.

The limits come with visibility and managing treatment settings. Fortunately, the latter is what Dr. Fong is here to guide us with.

He suggested that a 577 nm wavelength has the ideal absorption characteristics of a uniform thermal effect, good penetration through opacities, and low xanthophyll absorption. It also allows users to titrate power levels directly in the µpulse mode, letting doctors reach a visible endpoint. Additionally, since there is no intended thermal injury using SubLiminal, large, 160 µm spot sizes can be used to increase the treatment area and ensure a dense delivery of the laser impacts. Doing so also minimizes the gaps between spots and maximizes the treated area.

With a spot size of 160  $\mu$ m and a duty cycle of 5%, Dr. Fong recommends an exposure time of 0.2 seconds. The laser lens he uses is the Volk Area Centralis (0.94x) from Volk Optical (Ohio, USA).

Step one of the treatment involves power level titration. First, a line pattern is used to determine the thermal threshold of each patient. The power dose is evaluated in a healthy area of the macular periphery. Once the starting power has been selected, the laser spots of the pattern will automatically deliver increasing power. The thermal threshold power level is obtained when a barely visible threshold burn is observed. Then, reduce the power to 50% of the threshold power level for treatment.

Dr. Fong cautioned doctors to not exceed 1.2 W of power. If no visible threshold happens at 1.2 W, keep that power as a reference level and use half of it for treatment (i. e. 600 mW max).

In step two, the doctor will use the multispot delivery mode to implement the SubLiminal treatment. They can resume function activation, select their pattern (grid or square) with zero spacing, and use 50% of the power level reached during titration. During the treatment, no visible reaction must be observed. There's also no need to change power with different degrees of edema. Laser impacts must be confluent — leading to dense treatment. This treatment can be OCT-guided for DME or ICGA/FA-guided for central serous chorioretinopathy (CSCR).

Dr. Fong does not recommend shooting the fovea, noting that you can go quite close but should avoid it.

After treatment, wait at least 3 months for treatment of macular edema or 6 weeks for CSCR.

For non-center involved DME, the SubLiminal treatment can be used alone. For DME involving the fovea, Dr. Fong notes there are still open questions. He recommends anti-VEGF therapy as a first-line treatment for thicker retinas, and then proceeding to SubLiminal once the edema is settled to reduce the number of injections.

In patients without visual loss, however, SubLiminal can be used as a firstline treatment. If the edema further deteriorates, then anti-VEGF can come into play.

Dr. Fong also pointed out that SubLiminal is an excellent option for chronic CSCR and is an excellent alternative to midfluence PDT, inducing a complete resorption of the fluid within 6 weeks.



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# Challenges and Opportunities in Preventing Blindness Blindness Beyond 2020

he global epidemic of preventable blindness has already shown itself to have far-reaching consequences. It is necessary for society to provide adequate care to those in need. Fortunately, there has been some significant progress in treatment over the past year-and-a-half. However, there are still many challenges that lie ahead.

Prof. Ava Hossain, director and chief consultant, OSB Eye Hospital, (Dhaka, Bangladesh), introduced the symposium's panel and remarked on the great work that has been done in 2020, despite massive challenges due to the COVID-19 pandemic. They also highlighted some exciting innovations to look toward on the horizon of eye care treatment and technology.

### Achievements and remaining challenges

Prof. Nathan Congdon, director of research and North Asia Advisor for ORBIS International, has done a lot of work to improve access to eye care in Southern China. Recently, he has been working with the Lancet Global Health Commission, whose key message is that "eye health is essential to achieve Sustainable Development Goals and that vision needs to be reframed as a development issue." Good eye health at the community level is extremely important in the coming years.

There has been much progress in the field of eye health, but there are still many demographic changes that threaten the populations in nations based on their specific needs. There are new threats to eye health that require the attention of eye care professionals and activists. Some of these threats include: diabetic retinopathy, high myopia, retinopathy of prematurity and chronic eye diseases of aging, such as glaucoma and age-related macular degeneration. It is important that efforts are focused on access to complete eye care services.

### Improving screening for DR

Dr. Brijesh Takkar is a faculty member at the LV Prasad Eye Institute, (Hyderabad, India), and also a fellow with Indian Health Outcomes, Public Health and Economics (IHOPE) Research Centre. He explained that diabetic retinopathy (DR) is a serious eye health concern and the best way to address this issue is to make improvements in screening.

Region-specific and resource-aligned recommendations for screening and treatment of DR are necessary. In the past year, there have been many developments. However in the future, the new technological retinal imaging technology will be required to provide adequate care to those in need.

### Computer eye mapping for cataract screening

Prof. Ching-yu Cheng, Yong Loo Lin School of Medicine, National University of Singapore, remarked that cataracts are one of the leading causes of preventable blindness in the global population. Though it is one of the most common ailments, the development of the use of technology in its treatment has been relatively unexplored. Today, cataracts are mostly discovered by using slit lamp biomicroscopy, which the ophthalmologist then assesses to discover any abnormalities. Because of the expertise that the diagnostic system requires, the access to individuals in developing regions is limited. Introducing computer eye mapping will increase access to necessary eye treatments across the globe.

"Cataracts are one of the leading causes of preventable blindness in the global population."

# Screening and monitoring glaucoma in the community

Prof. Xiulan Zhang, Zhongshan Ophthalmic Center (Guangzhou, China), pointed out that another one of the most prevalent eye care issues is the identification and treatment of glaucoma. For several years, tomography has been used to identify early glaucoma — and there are new innovations in screening and monitoring that will best benefit patients and increase access.

Tomography is a non-invasive way to diagnose glaucoma. Now, with developments in medical image analysis, there is potential for greater access to screening and monitoring of glaucoma.

### Beyond 2020

The year 2020 was challenging and trying for everyone. Despite the obvious setbacks and limitations eye care professionals were able to thrive. They conducted research, identified problems and engineered solutions to ongoing eye care issues while battling the pandemic at the same time. It is encouraging to hear the self-reflection, as well as enthusiasm for innovation from these esteemed speakers.





# Redefining the Future of Monofocals by Hazlin Hassan

onofocal intraocular lenses (IOLs) is a standard lens commonly used in cataract surgery, however most IOLs in the monofocal category only correct vision to help cataract patients see distance and do not improve the intermediate vision that is required for many important daily tasks.

During an industry-sponsored symposium at the 36th Asia-Pacific Academy of Ophthalmology Virtual Congress (APAO 2021), delegates heard about the future of monofocal IOLs, like the next-generation TECNIS Eyhance IOL from Johnson & Johnson Vision (Santa Ana, California, USA). This IOL not only addresses monofocal needs, it

also helps to boost the quality of life of patients worldwide through improving intermediate vision.

### Raising the bar and the patient's quality of life

Intermediate vision is important for a patient's quality of life, said Prof. Filomena Ribeiro, head of the ophthalmology department, at Hospital da Luz, Portugal.

Indeed, a survey showed that presbyopiacorrecting IOL patients are the least satisfied with intermediate performance: "Overall, patients are not satisfied with their intermediate vision," she explained. "We need to understand the needs of the patient. Functional ability should be the main outcome for cataract surgery."

The TECNIS Eyhance allows patients to experience high-quality vision at both

intermediate and far distances, she noted. This lens enables most patients to perform certain activities requiring intermediate vision with greater ease, such as using a computer.

"We need to understand the needs of the patient. Functional ability should be the main outcome for cataract surgery."

### — Dr. Filomena Ribeiro, head of the ophthalmology department, Hospital da Luz, Portugal.

Results of a study also showed that patients who were implanted with the TECNIS Eyhance reported improvement in their ability to see when walking on uneven surfaces, and looking at prices while shopping. "We have an aging population and also, there is an increase in their activities, and those who work," said Prof. Ribeiro, adding that the impact of intermediate vision on quality of life is multidimensional, ranging from personal consequences to social and economic.

"In conclusion, the TECNIS Eyhance is a great revolution in cataract surgery. It is a very easy transition for any kind of surgeon. There is no learning curve, no additional chair time and it is a very good solution for all the cases with, for instance, biometric and IOL power doubts, or even patients with some ocular pathologies," she said.

"So right now, with the toric version,

we can consider the TECNIS Eyhance a universal monofocal."

### **Better vision, low-risk**

The enhanced monofocal TECNIS Eyhance IOL (ICB00) cannot be visually distinguished from the TECNIS 1-Piece IOL (ZCB00), said Prof. Gerd Auffarth, chairman of the Department of Ophthalmology, Ruprecht-Karls University of Heidelberg, Germany.

The Eyhance IOL has a refractive optical design with a high-order aspheric anterior surface that creates a continuous power progression. This refractive profile increases the power of the enhanced monofocal IOL continuously from the periphery to the center of the lens to extend the depth of focus. Plus, the higher order aspheric design of the Eyhance IOL at the same time compensates corneal spherical aberrations of -0.27 microns.

Results from a multicenter European prospective randomized study comparing the Eyhance ICB00 and the 1-Piece ZCB00 IOLs showed that the Eyhance outperforms the standard monofocal lens.

Patients enrolled in the trial were assigned to undergo bilateral implantation with the enhanced monofocal IOL or the standard monofocal lens. Sixty-seven (67) subjects who received the enhanced monofocal lens and 72 in the standard monofocal IOL group were seen at a 6-month follow-up visit. Data showed that the TECNIS Eyhance IOL provided statistically significant improvement in monocular intermediate vision at 66cm.



TECNIS Eyhance enables most patients to perform certain activities requiring intermediate vision with greater ease

To conclude, he said in comparison to aspheric monofocal IOLs, patients benefited from the TECNIS Eyhance IOL thanks to enhanced intermediate visual acuity. Because of its extended depth of focus, TECNIS Eyhance also appears to have a broader refractive landing zone compared with a standard monofocal IOL. He further noted that all of the benefits from the hydrophobic material of the TECNIS IOL platform also remained unchanged.

"There was no glistening, no light scattering, nor risk of calcification due to hydrophilic materials," shared Prof. Auffarth.

# Benefits for patients with retinal disorders

The TECNIS Eyhance can provide an improvement in intermediate vision, not only in normal cases, but also in cases of cataract surgery performed on patients with various retinal conditions, said Dr. Dong Yoon Kim, chief surgeon, Top Retina Center, Seoul, Korea.

He presented results from a study comparing early visual outcomes after cataract surgery with standard monofocal IOLs versus extended depth of focus monofocal IOLs in patients with retinal disorders.

Patients included in the study were those who required cataract surgery, who had cataract and retinal disorder, and preop K-astigmatism less than 1 diopter. Patients were followed for more than one month after surgery.

To conclude, TECNIS Eyhance IOL still gives the surgeon a full view of the fundus and can provide significantly better intermediate vision as early as one month post-cataract surgery for patients with cataract and retinal conditions, he shared, adding that at the same time, there was no impairment of distant visual acuity compared to the standard monofocal IOL. "The improvement of intermediate vision should be considered to improve a patient's quality of life, even in patients with retinal disease," he said.

In summary, the revolutionary TECNIS Eyhance IOL can provide an improvement in intermediate vision, not only in normal cases, but also in cases of cataract surgery with various retinal conditions.

# **All About** Recognition 2020 Named Award Lectures by Jillian Webster

### **Prevention** and treatment of corneal diseases

Prof. Linxin Xie is the honorary director of Shandong Eye Institute and the dean of Qingdao Eve Hospital, China, He presented the De Ocampo Lecture: My 50 Years' Work for Prevention and Treatment of Corneal Diseases. Prof. Xie has dedicated his life to the study and

treatment of eye disease. He is the founder of the Shandong Eye Institute, which is currently constructing a medical university.

Prof. Xie's research in infectious kearitus, tissues engineered cornea and diabetic keratopathy, has had very high success rates in treatment testing. He continues to lecture and has supervised over 118 medical students — making his inspirational career a fitting example of the ophthalmic work celebrated by the De Ocampo Lecture.

### Maneuvers in cataract surgery

Prof. Soon-Phaik Chee is a professor at the National University of Singapore and

**Duke-National University of Singapore** Graduate Medical School. She presented the Susruta Award Lecture on My Favorite Manoeuvres in Cataract Surgery. Showing immense skill and quick thinking, Prof. Chee presented an impressive highlight reel of some of her favorite surgical procedures.

Prof. Chee emphasized her "cross chop" procedure, where she splits tough corneal tissue into three pieces to better manage its removal and replacement. She exhibited an instance where her initial strategy did not have the desired results and then deftly adapted and completed the surgery. She was later complemented by the other panelists for her skill.

Congratulations to these award lecture winners for their impact in improving ophthalmology!

n the last day of the 36th Asia-Pacific Academy of Ophthalmology Virtual Congress (APAO 2021), a panel of award winners were honored in the highly anticipated APAO 2020 Named Award Lectures session. This panel included some of the leading experts from all over the world: Prof. Ronald Krueger (USA), Prof. Dennis Lam (Hong Kong); Prof. Lixin Xie (China); and Prof. Soon-Phaik Chee (Singapore). These all-stars of the ophthalmic world presented 20 minute lectures that highlighted their achievements and insights in a variety of different areas.

### From SMILE to LIKE

Prof. Ronald R. Krueger is the McGaw professor and chairman of the Department of Ophthalmology and Visual Science at the University of Nebraska Medical Center and the director of the Stanley M. Truhlsen Eye Institute in Omaha, Nebraska, USA. He presented the Jose Rizal International Medal Lecture on refractive surgery, From SMILE to LIKE.

Small incision lenticule extraction (SMILE) has gained popularity in the last decade. Dr. Krueger said: "There's been more than 3 million smile procedures performed worldwide." As SMILE has increased in popularity, there has also been an increased interest in lenticular implantation keratoplasty (LIKE), a new tissue addition procedure where laser-shaped corneal tissue is added rather than subtracted from the cornea. According to Prof. Krueger, it is advantageous for moderate to high hyperopia, presbyopia and keratoconus. During the procedure, tissue is placed either in a corneal pocket or under a LASIK flap.

Prof. Krueger highlighted six things to consider when it comes to LIKE. These include: refractive and treatment indications; implantation techniques; tissue preservation and banking; immunogenicity and sterilization; shaping and refractive predictability; risks and benefits over methods; and cost and business flexibility.

Considering all things, Prof. Krueger believes that the increased popularity of SMILE and the development in lenticule banking and implantation surgery is a new market and will continue on the legacy of Jose Rizal.

### Grooming future leaders in ophthalmology in the Asia-**Pacific**

Prof. Dennis Lam is the immediate past president of the Asia-Pacific Vitreo-Retina Society (APVRS) and the Immediate Past Secretary-General of the APAO. He presented the Arthur Lim Award Lecture on the topic of Grooming Future Leaders in Ophthalmology in the Asia-Pacific Region. His lecture focused on the importance of leadership in education and said that the future depends on the next generation. Prof. Lam stressed that communication is key in developing relationships that will benefit the world of ophthalmology.

Prof. Lam shared his thoughts around eight important components of leadership summed up by an acronym, VIPS (Vision, Value, Insight, Innovation, Partnership, Priority, SWOT analysis, Stress prevention and management). He said that he believes that what is imaginable is possible and that moving forward, eye care professionals should continue to be inspirational.

# Keeping an Eye on Trends

What's hot and trending among the latest innovations in eye care by Jillian Webster

or the 7th (and last!) day of the 36th Asia-Pacific Academy of Ophthalmology Virtual Congress (APAO 2021), ophthalmological experts from across the Americas – the Pan-American Association of Ophthalmology (PAAO) – have come together to discuss the newest and exciting topics in various subspecialty fields. These insights may change the way eye care professionals treat patients in the future.

# Trends in the management of corneal endothelial dystrophy

Dr. Paulo Dantas, the editor in chief of *The Pan-American Journal of Ophthalmology*, shared the trends in the management of corneal endothelial dystrophy (CED).

There have been shifts in the treatment of CED over the years. Posterior lamellar keratoplasty (PLK), Descemet stripping endothelial keratoplasty (DSEK), Descemet's membrane endothelial keratoplasty (DMEK), as well as cell therapy have been explored as treatments by ophthalmologists.

Dr. Dantas cited a study by Gh. Yam, X Seah, and NZBM Yusoff that documented treatment of CED with epithelial stem cells with positive results. The processes of corneal transplantation with donor and artificial lens have also shown a reduction in corneal thickness. Dr. Dantas is hopeful that there will be more genetic and pharmaceutical treatments for CED in the future.

### Use of intravitreal anti-VEGF injections for RAM

Prof. J. Fernando Arevalo, chair-elect

of the Board of the Pan-American Foundation of Ophthalmology, was next to take the floor. He discussed the results of the study of intravitreal antivascular endothelial growth factor (anti-VEGF) injections for exudative retinal arterial macroaneurysms (RAM).

Prof. Arevalo emphasized the importance of risk-to-benefit consideration in the treatment of RAM. His study found that after two to three months, there was a noticeable improvement in patients that have received anti-VEGF treatments. He goes on to highlight specific cases that show improvements in visual acuity.

# The latest in angle-closure glaucoma treatment

Dr. Marcelo Nicolela, chair and service chief at the Department of Ophthalmology and Visual Sciences at Dalhousie University in Halifax, Canada, discussed glaucoma, specifically primary angle closure (PAC), and its treatments.

In an 889-person study, patients were treated with laser peripheral iridotomy (LPI) and the procedure was assessed for effectiveness in comparison to lens extraction (LE) and intraocular pressure (IOP). In his interpretation of the data, Dr. Nicolela recommended that LE or IOP should be attempted in the early stages of PAC because there is shown to be better effectiveness in these treatments. LPI should be explored in more advanced stages of glaucoma.

### Ocular disease manifestations in the pediatric population

Dr. Angela Fernandez talked about the

issues that face eye care professionals regarding children and the transmission of COVID-19.

Children represent a small percentage of total infections but still may increase the risk of transmission. Conjunctivitis, as Dr. Fernadez pointed out, is often a common symptom of COVID-19 in children. Additionally, in asymptomatic juvenile carriers of COVID, the virus can be transmitted during the close examination process. Dr. Fernandez said she encourages the diligent use of personal protective equipment.

### New surgical technique in the treatment of neurotrophic keratitis

Dr. Roberto Ebner explained his surgical technique in treating neurotrophic keratitis for the purpose of restoring corneal sensibility. Dr. Ebner showed examples of surgery to reattach nerves and to "bring life" to the corneas that had been previously unresponsive.

The exciting insights and latest news and advancements in the industry shared during this panel are proof of the progression of ophthalmological research and treatments. It will be exciting to see what will be presented in next conferences.



# To Peel or Not To Peel, and Other Tips for Retinal Detachment





detached retina is a medical emergency that can lead to blindness unless it is treated.

In a session on retinal detachment management, renowned surgeons from the Asia-Pacific region shared short case presentations of different types of retinal detachment and management strategies in Day 7 of the 36th Asia-Pacific Academy of Ophthalmology Virtual Congress (APAO 2021).

### **Challenges in PVR**

Dr. Marie Joan Loy, from St Luke's Medical Center, Philippines, spoke about proliferative vitreoretinopathy-related (PVR) retinal detachments, a particularly challenging condition.

These occur when there is a proliferation of cells on both sides of the retina or in the vitreous. The contraction of membranes lead to fixed folds and retinal detachment, while intraretinal changes or intraretinal PVR cause retinal shortening.

Proliferative vitreoretinopathy complicates approximately 5 to 10% of all retinal detachment repairs and accounts for approximately 75% of all primary surgical failures.

In a silicone oil study, there was a 36-42% success rate for PVR surgery, and there was poor visual recovery. There is a long list of varying risk factors for PVR including uveitis, giant or multiple tears, vitreous hemorrhage, choroidal detachments, aphakia, previous surgeries, chronic retinal detachment, history of trauma, and presence of intraocular foreign body.

"Management of PVR is quite challenging. So the best way to prevent PVR from occurring is by doing prompt and successful repair of RRD," she advised.

There is no current pharmacologic agent

proven to treat or prevent PVR, although there have been several studies on different agents. However, none have been proven conclusively to be superior to surgery.

"Management of PVR is quite challenging. So the best way to prevent PVR from occurring is by doing prompt and successful repair of RRD."

— Dr. Marie Joan Loy, St Luke's Medical Center, Philippines

"In summary, PVR is the most common cause of retinal detachment. The best way is to prevent PVR formation by prompt treatment of rhegmatogenous retinal detachment (RRD)." While the mainstay of treatment is still surgical, surgery is usually challenging and difficult. Extra patience is important intraoperatively, she added.

### Traumatic retinal letachm

Two examples of trauma-related retinal detachments were presented by Dr. Vivek Dave, vitreoretinal consultant, LV Prasad Eye Institute, India.

He shared the case of a 59-year-old male who presented with a sudden onset of vision loss in the right eye for 10 days after a blunt injury to the eye, a month prior. There was a shallow retinal detachment on the posterior pole and prominent carotid detachments.

A second patient, a 53-year-old male, had sudden onset vision loss eight days after a road traffic accident and was diagnosed with an orbital fracture in the left eye. There was also loss of vision. An ultrasound showed a retinal detachment, with associated subretinal hemorrhage in the sunken globe.

He then shared some take-home learning points from these two cases: "Expect concurrent carotid detachment in a giant retinal tear because of the severe hypotony effect. In such cases, the infusion cannula can slip in the subretinal space, so look for the subretinal cannula slippage and deal with it appropriately," he said.

Further, Dr. Dave said that significant carotid detachments can be drained externally to allow for a better surgical outcome. Meanwhile, an attachment with badly traumatized globes can have subretinal hemorrhage and an ultrasound scan could be used as a clue to clinch the diagnosis.

"Limited or total retinectomy can allow for clot clearance from the subretinal space, and following which, the surgery may have visual benefit," he said.

# opic macular hole retinal

Prof. Kazuaki Kadonosono, Yokohama City University Medical School, Japan,

talked about myopic macular hole retinal detachment (MHRD), which are mainly caused by tangential traction due to the epiretinal membrane.

"In order to resolve this problem, ILM (internal limiting membrane) peeling is very useful, because there is complete relief of tangential traction force to the retina," he said.

However, he noted that there is a lower closure rate of macular hole in the MHRD when ILM peeling is done. A study on the outcomes of surgical treatment for MHRD showed that reattachment rates for macular hole closure and visual acuity were significantly higher with the inverted ILM flap technique at 80.7% versus 37.2% with ILM peeling. The reattachment rate was 91.2% with the ILM flap and 79.5% with ILM peeling.

His take home message? MHRD is one of the symptoms caused by myopic tractional maculopathy. "The current recommended treatment for MHRD is vitrectomy with the ILM left in place," he said.

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