We at PIE Magazine had a huge blast around the world in 2017 covering ophthalmology...and we are starting 2018 right here at APAO Hong Kong!

Must-visit destinations in Hong Kong while at APAO...check-out some of our recommendations.

APAO 2018
Brings ‘Creativity and Technology without Boundaries’ to Hong Kong

by Brooke Herron

All eyes will be on Hong Kong during the 33rd Asia-Pacific Academy of Ophthalmology (APAO) Congress (APAO 2018), a major driving force of ophthalmic development in the region. Held in conjunction with the 29th Hong Kong Ophthalmological Symposium, APAO 2018 takes place at the Hong Kong Convention and Exhibition Centre (HKCEC) from February 8 to 11. The meeting, which is co-hosted by the Hong Kong Ophthalmological Society and the College of Ophthalmologists of Hong Kong, welcome thousands of ophthalmologists from all over the world with the theme: “Creativity and Technology without Boundaries.”

“We are much honored that Hong Kong has once again been chosen to host the prestigious APAO annual congress, which has now become the premier ophthalmic professional and scientific event,” said Prof. Clement Tham, APAO 2018 Congress President and Secretary-General & CEO for APAO. The last time Hong Kong hosted the event was in 2008.

With the goal of eliminating blindness through teaching, research and service, the APAO fosters cooperation and encourages collaboration between ophthalmological societies in different countries. Accordingly, the APAO is very active in the world of ophthalmology: it organizes an annual congress, co-organizes scientific meetings and conferences, publishes the Asia-Pacific Journal of Ophthalmology, recognizes ophthalmologists’ achievements in research, education and blindness prevention, runs a leadership development program and an international fellowship program, offers training and learning opportunities to young ophthalmologists, and provides an online platform on which ophthalmologists from different parts of the world can interact and consult with one another.

HotShot!

Santen's Taflotan bottle, at "2.5 ml", is still huge! Check out the big bottle at Santen booth #3G-01.
In patients with visual impairment due to DME*…

START STRONG

EYLEA® provides strong, increasing vision gains over the course of 5 initial monthly doses

STAY STRONG

In EYLEA pivotal trials, patients maintained Year 1 mean vision gains of >10 letters through 148 weeks

UNIQUE MOA

EYLEA was designed to inhibit both VEGF and PGF by binding with greater affinity than each of their natural receptors

References:

1. Posology & method of administration

2. Monitoring for disease activity include clinical examination, functional testing or imaging techniques (e.g. optical coherence tomography or fluorescein angiography). For DME, initiate treatment with one injection per month for five consecutive doses, followed by one injection every two months. Monitoring and treatment schedule should be determined based on the individual patient’s response.

3. STAY STRONG

As with other intravitreal therapies, endophthalmitis, intraocular inflammation, rhegmatogenous retinal detachment, retinal tear and iatrogenic traumatic cataract have been reported. Aseptic injection techniques must always be used in total. The excess volume should be expelled before injecting. The recommended dose is 2 mg aflibercept, equivalent to 50 µg per injection site.

Posology & method of administration

Eylea® 40 mg/ml solution for injection in a vial (aflibercept) is a humanized antibody that neutralizes VEGF and PGF. It is indicated for the treatment of vision loss secondary to diabetic macular edema (DME), visual impairment due to macular oedema secondary to retinal vein occlusion (branch RVO or central RVO), visual impairment due to diabetic macular oedema (DME) in adults, and visual impairment due to macular oedema secondary to retinal vein occlusion (branch RVO or central RVO) in adults.

Presentation:

Each vial contains 100 microlitres, equivalent to 4 mg aflibercept.

Abbreviated Prescribing Information

* DME - Diabetic Macular Edema

EYLEA provides strong, increasing vision gains over the course of 5 initial monthly doses. In patients with visual impairment due to DME, Eylea® provides strong, increasing vision gains through 148 weeks.

In Eylea pivotal trials, patients maintained Year 1 mean vision gains of >10 letters through 148 weeks.

Eylea® was designed to inhibit both VEGF and PGF by binding with greater affinity than each of their natural receptors.
**Posology & method of administration:**

- **Diabetic Macular Edema (DME):** Treatment is initiated with one injection per month for five consecutive doses, followed by one injection every two months. No requirement for monitoring between injections. After the first 12 months of treatment, and based on visual and/or anatomic outcomes, treatment can be increased or decreased as required. Treatment should be discontinued if visual and/or anatomic outcomes indicate that the patient is not benefiting from continued treatment.

- **Central Retinal Vein Occlusion (CRVO):** The recommended dose is 2 mg aflibercept, equivalent to 50 microlitres. Wet AMD treatment is initiated with one injection per month for three consecutive doses, followed by one injection every two months. No requirement for monitoring between injections. After the first 12 months of treatment, and based on visual and/or anatomic outcomes, treatment can be increased or decreased as required. Treatment should be discontinued if visual and/or anatomic outcomes indicate that the patient is not benefiting from continued treatment.

**Warnings & precautions:**

- **Contraindications:**
  - Hypersensitivity to active substance or any excipients.
  - Active or suspected ocular or periocular infection.
  - Active severe intraocular inflammation.

- **Precautions:**
  - Avoid treating patients with known ischaemic visual function loss due to myopic choroidal neovascularisation (myopic CNV).
  - Be aware of the potential for immunogenicity as with other therapeutic proteins; patients should report any signs or symptoms of hypersensitivity.
  - There is a potential for systemic adverse events including fever, myalgia, and other localized pain at the injection site.

**Presentation:**

- **Eylea® 40 mg/ml solution for injection in a vial (aflibercept)**

**References:**

2. EyLEA® (aflibercept solution for injection) Full Prescribing Information.

**Very common adverse effects:**

- Visual acuity reduced, conjunctival haemorrhage, eye pain.

**Common adverse effects:**

- Retinal pigment epithelium tear, retinal degeneration, vitreous haemorrhage, cataract (cortical, nuclear or subcapsular), corneal erosion or abrasion, increased intraocular pressure, blurred vision, vitreous floaters, vitreous detachment, injection site irritation, abnormal sensation in eye, eyelid irritation, anterior chamber flare, corneal oedema.

**Uncommon adverse effects:**

- Hypersensitivity, endophthalmitis, retinal detachment, retinal tear, iritis, uveitis, iridocyclitis, lenticular opacities, conjunctival hyperaemia.

**Rare adverse effects:**

- Injection site haemorrhage, ocular edema, injection site erosion, conjunctival erosion, conjunctival erosion or abrasion, increased lacrimation, eyelid oedema, punctate keratitis, conjunctival or ocular hyperaemia.

**Very rare adverse effects:**

- Erosion or abrasion of eye, subconjunctival haemorrhage, subconjunctival haemorrhage, subconjunctival injection site reaction, conjunctival erosion or abrasion, increased lacrimation, eyelid oedema, punctate keratitis, conjunctival or ocular hyperaemia.
The highlight of APAO 2018 will be the four prestigious keynote lectures, awarded to leaders and innovators in ophthalmology. Each speech will address critical ophthalmic issues in Asia-Pacific. Dr. Suber Huang (United States) received the Jose Rizal International Medal, which recognizes outstanding persons from outside the Asia-Pacific, whose contributions have been exceptionally valuable to ophthalmological developments in the region. Currently, Dr. Huang is the president and CEO of the Retina Center of Ohio, assistant clinical professor of ophthalmology at Bascom Palmer/University of Miami, and he is also chair of the NEI/NIH National Eye Health Education Program. His current research includes the Argus II retina prosthesis, gene therapy for neovascular age-related macular degeneration (nAMD), tissue replacement for atrophic AMD, immunomodulation by stem cells, visual analytics in diabetes, and economic modelling of ophthalmic innovation. Honors include the Top Doctors and Best Doctors in America award each year since 2003, AAO Secretariat Award (twice), AAO and ASRS Senior Achievement and Honor Awards, among numerous others. In 2017, Dr. Huang was inducted as a charter member of the Retina Hall of Fame. His lecture, titled “Innovation and Collaboration in Ophthalmology: Envisioning the Future Advancements in Technologies for Treatment,” will explore three research programs and examine how their success provides insight into how leadership, collaboration, shared resources, and common purpose are critical determinants for future research design. “In a world where innovation and discovery are occurring at a faster rate than ever before, the role of speed, efficiency, and how the changing economic landscape will direct future inquiry will also be examined,” added Dr. Huang.

The De Ocampo Lecture, given by Prof. Yizhi Liu, MD, PhD, (China) is the highest award for excellent academic achievements in clinical and/or basic eye research. He is professor and director of Zhongshan Ophthalmic Center at Sun Yatsen University and director of the State Key Laboratory of Ophthalmology. He currently serves as chair of the APAO Public Education Standing Committee, vice president of the Chinese Ophthalmological Society, and president of the Guangdong Ophthalmological Society. As a clinical ophthalmologist, Prof. Liu is recognized as a pioneer in China for performing phacoemulsification and intraocular lens implantation and he is a global leader in the research areas of cataract and stem cell-mediated ocular tissue self-repair. Thus far, he has carried out approximately 200,000 surgical operations for cataract patients and his innovations in the cataract technology system have brought great improvements. For his work, he has been recognized with numerous awards, like the APAO Arthur Lim Award (2014), Asia-Pacific Association of Cataract and Refractive Surgeons Gold Medal (2017), Guangdong Provincial Science and Technology Outstanding Contribution Award (2016), Chinese Physician Award (2016), among others. Titled “Lens Regeneration Using Endogenous Stem Cells with Gain of Visual Function in Treatment of Congenital Cataract Regenerative Medicine in Ophthalmology Using Stem Cells,” his lecture will recount results from a recent study where Prof. Liu and his team regenerated lenses with visual function in human infants with cataracts. “Human lens regeneration using endogenous stem cells with biological function and a subsequent novel treatment strategy for cataracts have been achieved for the first time in our study, which may provide a new paradigm for tissue regeneration using endogenous stem cells,” said Prof. Liu.

The Susruta Lecture recognizes extraordinary contributions to the cataract subspecialty, specifically ophthalmologists who contribute substantially to the control and elimination of mass cataract blindness.
which is a perennial problem in the Asia-Pacific region. The 2018 lecture will be delivered by Dr. Pak-Chin Chow (Hong Kong), a man with great passion and vision in the prevention of blindness - particularly blindness caused by cataract. Dr. Chow is the vice chairman of Project Vision, which brings self-sustainable cataract extraction programs to the underprivileged rural population in China. He also wholly funded and established a charity eye center in Gansu, China, in 2012 and was actively involved in training local doctors, who since have performed over 1,000 surgeries to date.

Additionally, Dr. Chow is the founding chairman and patron of the Hong Kong Medical Association Charitable Foundation, founding chairman of Eye Care Charitable Foundation, medical director of the Asian Foundation for the Prevention of Blindness, and the Honourable Ophthalmologist Ambassador of “SightFirst China Action,” a blindness eradication campaign that was commended by the World Health Organization (WHO) as one of the largest and most successful ever. For his commitment and devotion to the eradication of cataract blindness, Dr. Chow was awarded the Outstanding Service in Prevention of Blindness Award and the Distinguished Service Award by the APAO in 2005 and 2010, respectively. He was awarded the Hong Kong Humanity Award by the Hong Kong Red Cross in 2007, as well as the Hong Kong Loving Hearts Award by Asia Television Ltd in 2012. In his lecture, “Eradication of Cataract Blindness: An Impossible Dream? Empowering Prevention of Blindness for Fighting Major Causes of Visual Impairment and Low Vision,” Dr. Chow will highlight ways to overcome the hurdles to solve cataract blindness in China. “Hopefully, this may serve as a point of reference for other countries and regions in their quest to conquer difficulties on their roads to eradicating cataract blindness,” he said.

Dr. Paisan Ruamviboonsuk (Thailand) received the Arthur Lim Award, which recognizes ophthalmologists who have demonstrated exemplary leadership in the field of ophthalmology and subsequently made substantial improvements in ophthalmic teaching and training in their countries and beyond. Dr. Ruamviboonsuk is the immediate past president of the Royal College of Ophthalmologists of Thailand (RCOPT), and was president of the Thai Retina Society from 2009 to 2013. He has been an APAO council member since 2013 and a council member of the Asia-Pacific Vitreo-retina Society (APVRS) since 2010. His achievements include the initiative on prevention of blindness from diabetic retinopathy (DR) which encompasses different approaches in eye care, such as research, training, education, service improvement, and policy advocacy.

This initiative received the National Service Award from the Office of Public-Sector Development Commission of Thailand. He has collaborated closely with the APAO Gateway Project and Sight For All Foundation to reduce blindness and improve ophthalmic education in Laos by recruiting Thai ophthalmologists to work there. In the past, Dr. Ruamviboonsuk has received the APAO Distinguished Service Award and APAO Achievement Award. He was president of the 10th APVRS Congress in 2016 and will be the president of the 34th APAO Congress in 2019. His lecture, “Deep Learning for Diabetic Retinopathy Screening: Just the Tip of an Artificial Intelligence Iceberg in Ophthalmology and Medicine,” will discuss how deep learning and artificial intelligence is being integrated into medicine, including ophthalmology.

A Robust Scientific and Social Program

APAO 2018 also boasts a star-studded Scientific Program with more than 600 experts from around the world, with an emphasis on cutting-edge scientific innovations, surgical techniques and technologies. “Our scientific program will be the best showcase for the theme of our APAO 2018 Congress, ‘Creativity and Technology without Boundaries,’ with the clear objective of preparing today’s ophthalmic practitioners for the ever-evolving future of eye care,” said Prof. Tham.

“In addition to the impressive scientific program, in 2018, for the first time at an APAO congress, we have wet laboratory instruction courses and prizes for the best submissions,” added Carmen Chan, Chair, APAO Organizing Committee. “We have also prepared a social program that will provide excellent opportunities for delegates to have fun with old friends and meet new ones.”

The social program will include the Opening Ceremony, Welcome Reception, Presidential Dinner and Gala Dinner. Additionally, APAO will organize its third annual Charity Run on February 10, Saturday, at 6:30 am. The Charity Run will begin at the Hong Kong Observation Wheel and cover a 3-km route, with magnificent views of Hong Kong’s Victoria Harbour. There will also be a Women in Ophthalmology (WIO) Lunch and a Young Ophthalmologists’ Night.

Discover Hong Kong and Have Fun Too!

Beyond the exciting lectures, scientific and social programs at APAO 2018, attendees should make time to explore the vibrant and cosmopolitan city of Hong Kong. Known as “Asia’s World City,” Hong Kong is a modern international hub of finance and trade with soaring skyscrapers and bustling streets, and elements of traditional Chinese and British heritage are evident through language, food and culture. APAO 2018 will take place at the award-winning Hong Kong Convention & Exhibition Centre (HKCEC). The Centre is conveniently located downtown (in the heart of the business district) and is one of the largest purpose-built complexes in Asia.

With an anticipated 5,000 delegates in attendance, APAO 2018 will surely provide an excellent occasion to network and seek collaborative opportunities. “Additionally, Congress attendees can enjoy beautiful and historic attractions, along with delicious cuisine and unlimited shopping experiences, in the dynamic city of Hong Kong. We very much look forward to seeing you in Hong Kong during the 33rd APAO Congress. It is an event not to be missed!” said Charles McGhee, APAO president.

Editor’s Note: A version of this article first appeared at issue 04 of PIE Magazine, Asia-Pacific’s first and only magazine dedicated to the posterior segment, published by Media MICE Pte Ltd.
Be Sure to Check-out the Free Paper Presentations at APAO 2018

Development of Machine Learning Algorithms for Predicting Prognosis in Diabetic Macular Edema

Dr. Shao-Chun Chen from the Department of Ophthalmology, Taipei City Hospital (Taipei, Taiwan) and colleagues applied machine learning to create an algorithm for automated prediction of the prognosis of diabetic macular edema treated with ranibizumab. Using Protocol I data set, the investigators optimized artificial neural networks for regression calculation. The targets were set at final visual acuity at 3 different target time points (52 weeks, 78 weeks, and 104 weeks). Baseline variables including gender, age, diabetes type or condition, systemic diseases, eye status, and treatment time tables were used as inputs. Based on the results, the team concluded that machine learning algorithms had good preference for predicting prognosis with ranibizumab with just baseline characteristics; and that these models could be useful clinical tools for expectation and explanation of treatment. For more details on this study, catch Dr. Chen’s presentation on Sunday, February 11, 9.00 to 10.30 am at S425.

Clinical Outcomes of Hybrid Micromonovision-Extended Range of Vision IOL with Monofocal IOL

Dr. Sheetal Brar and Dr. Sri Ganesh from Nethradhama Superspeciality Eye Hospital (Bengaluru, India) conducted a prospective interventional study of 15 patients to examine the clinical outcomes in hybrid micromonovision with an extended range of vision (ERV) intraocular lens (IOL) in 1 eye and a monofocal IOL in the contralateral eye. The subject patients were implanted with Symfony ERV IOL (Johnson & Johnson Vision, Santa Ana, CA, USA) in the nondominant eye and a monofocal aspheric IOL in the dominant eye following phacoemulsification. Micromonovision was planned with a target postoperative refraction in the nondominant eye as -0.75 diopters (D). Patients were tested for corrected/uncorrected distant, intermediate, and near visual acuity; reading performance (using Salzburg Reading Desk); defocus curve; and contrast sensitivity tested at 1 week, 1 month, and 6 months postoperatively. As a result, the patients had excellent unaided vision at all distances with good contrast sensitivity and minimal dysphotopsia at 6 months postoperatively. Such results, according to the investigators, suggest that this combination of 1 eye with ERV IOL and the contralateral eye with monofocal IOL may provide satisfactory outcomes with good tolerance of micromonovision. For more details on these findings, do not miss the presentation of this paper on February 09 (Friday), 9.00 - 10.30H at S223.

Results of Amniotic Membrane Transplantation According to Indications of Ocular Surface Disease

Dr. Chan-Ho Cho and colleagues evaluated the frequency and the clinical outcomes of amniotic membrane transplantation (AMT) for various ocular surface diseases including corneal perforation. The team retrospectively reviewed subjects which included 590 eyes who underwent AMT for ocular surface disease between January 1999 and July 2017. Indications of disease, types of amniotic membrane, types of surgical procedure, and clinical results were analyzed. Success was defined as complete epithelial healing; absence of aqueous leakage, no recurrence of pterygium, surface stabilization with repeat AMT, or therapeutic keratoplasty after AMT in corneal perforation. Failure was defined as recurrence of persistent epithelial defect, pterygium, corneal ulcer, and persistent aqueous leakage. Based on study findings, the team concluded that AMT was an effective and successful method for managing various ocular surface diseases including corneal perforation. Appropriate use of permanent and temporary AMT is considered effective and useful for rapid epithelial healing and ocular surface reconstruction. If you wish to learn more, catch the presentation on February 9 (Friday), 16.30 to 18.00H at S228.

The Efficacy of Systemic Analgesics in Management of Pain and Ocular Symptoms Following Photorefractive Keratectomy

Dr. Alireza Esfampoor and Dr. Siamak Zarei-Ghanavati from the Khatam-al-anbia Eye Research Center in Iran, evaluated the efficacy of systemic nonsteroidal anti-inflammatory drugs (NSAIDs) and GABA analogs in the management of pain and ocular symptoms following photorefractive keratectomy, in a randomized clinical trial that included 120 patients in 4 groups. All patients received topical NSAID following surgery and were divided randomly into 4 groups: group 1 including 30 patients who had taken systemic NSAID (diclofenac 100 mg/ day; Voltaren, Novartis), group 2 including 30 patients who had taken gabapentin (gabapentin 100 mg twice a day (BID); Jalainus Pharmacy, Iran), group 3 including 30 patients who had taken pregabalin (Lyrica 50 mg BID; Pfizer), and group 4 including 30 patients who had taken placebo. Asing a standard visual pain scale and standard checklist, patient pain and ocular symptoms and signs were evaluated at 24 hours following surgery. The results showed that GABA analogs including gabapentin and pregabalin had better results in pain management, conjunctival injection, and functional activity (P < 0.05) followed by the systemic NSAID and placebo groups. In terms of eyelid edema and photophobia, patients in the treatment groups had better results than the control group but there was not a significant difference between treatment groups. Based on such findings, the investigators concluded that GABA analogs including gabapentin and pregabalin could be effective in the management of pain following photorefractive keratectomy. They could also be helpful in providing better functional activity. Be sure to catch this paper’s presentation on February 9 (Friday), 16.30 to 18.00H at S228.
INDUSTRY UPDATE

New COO at SCHWIND
Domenic von Planta joins SCHWIND eye-tech-solutions as Chief Operating Officer

In January 2018, Domenic von Planta joined SCHWIND eye-tech-solutions GmbH & Co. (Kleinostheim, Germany) as chief operating officer (COO) and deputy managing director. In this role, he is responsible for purchasing, production, logistics and service.

Mr. von Planta possesses years of international experience and a proven track record in supporting growth initiatives. At SCHWIND, he plans to optimize and streamline processes to foster expansion, establish a broader supplier base, facilitate the highly skilled team’s continued development, and support the operational staff, as well as the entire organization.

“I am delighted to have Domenic von Planta on board as the new COO. Together with the Schwind team, we will be reaching the next level of corporate development,” said Rolf Schwind, chief executive officer (CEO) and managing director of SCHWIND eye-tech-solutions. Mr. von Planta succeeds Kurt Geiss, who is retiring after more than 30 years of service with the company.

Before joining SCHWIND, Mr. von Planta held various leadership roles with the global Buhler Group, (Uzwil, Switzerland), and most recently, he was COO of the Buhler subsidiary Leybold Optics (Alzenau, Germany), which is one of the world’s leading optical thin-film equipment manufacturers. As such, he has comprehensive experience in implementing efficient and lean corporate processes, including assembly standards and modularization. This expertise will be particularly valuable to SCHWIND for the expected growth from the market launch of future technologies.

Mr. von Planta has also worked with Booz & Company, where he focused on international strategy consulting, particularly with industrial companies, as well as several assignments in the healthcare sector. He holds an MBA degree from INSEAD in France and Singapore, and completed his law studies and passed the bar exam in Switzerland.

Quantel Medical Receives Japanese Approval
Ophthalmologists in Japan just received new instrumentation to treat disease in the posterior segment: the Easyret Photocoagular Laser from Quantel Medical (Clermont-Ferrand, France), a global ophthalmic device company. Recently approved for use in the Japanese market, this fully integrated system with ELBA fiber laser technology can be used to treat a number of pathologies, including diabetic retinopathy, macular edema and central serous chorioretinopathy.

“The Easyret’s ELBA fiber laser cavity delivers pure 577nm yellow wavelength in a uniform top-hat laser spot profile, making it ideal for ophthalmic applications,” said Jean-Marc Gendre, CEO of Quantel Medical in a press release. In 2016, Quantel Medical introduced fiber technology for 577nm yellow lasers in Europe, which led to the creation of its proprietary ELBA laser technology.

The Easyret’s broad range of settings allow for a wide range of macular and peripheral retinal procedures. In addition to SingleSpot treatment mode, surgeons can use Multispot mode for a pattern of simultaneous targets, while the SubLiminal mode enables customization of a train of short pulses to precisely manage the thermal effect on targeted tissues.

In addition, the technology was created with posterior segment surgeons in mind. “It’s a compact, reliable variation on solid state lasers that provides an extended lifetime of service,” added Mr. Gendre. “Quantel Medical engineers worked closely with surgeons to design a fully integrated system with an intuitive interface to ensure optimal ergonomics and ease of use. Surgeons’ input was essential to the Easyret’s design, and we are pleased with their enthusiasm for this new technology.”

Quantel Medical is dedicated to developing leading technologies to improve the diagnosis and treatment of ocular diseases – in fact, in 1995, it was the first company to introduce solid-state diode-pumped technology for green photocoagulators. The company already has a presence in Japan through ACURA, its exclusive distributor. And according to Mr. Gendre, the company is very pleased to introduce this technology to ophthalmic surgeons and their patients in Japan.

Lunchtime Symposium
Thursday, February 8, 2018 • 13:00 - 14:00 • Theatre 2

MicroPulse Laser: A Novel Technology for Glaucoma Treatment That Revolutionizes TSCPC

Robert Chang, MD
Assistant Professor
Stanford University Medical Center

Maria Cecilia Aquino, MD
Glaucoma Specialist
National University Hospital Singapore

Dr. Poemen Chan
Honorary Assistant Professor
The Chinese University of Hong Kong

Visit us at booth #3J–23 or iridex.com/apao to learn more
Smart Cornea Services: Role of Smartphone Based Applications in Reaching Out to Rural India

Dr. Madhu Uddaraju from the UVSM Eye Hospital, Behat, India, led the examination of clinical and financial implications in diagnosing and treating corneal diseases with the use of smartphone-based applications in primary eye care centers and outreach screening camps. To conduct the said study, internet-enabled simple smartphones with decent cameras for vision technicians and treating physicians were made available. Slit lamp and clinical microscope attachments were included in these smartphones to take clinical images and microbiological smear images. Smart cornea services were implemented in 8 of the primary eye care centers along with 300 outreach screening camps in a period of 1 year (January to December 2016). In the first year alone, the investigators were able to reach out to 10,262 patients; of which 6090 were through our primary eye care center network and the remaining 4172 were in outreach screening camps. This initiative helped the patients save an average of 25 USD individually on travel and loss of wages for a day that accounted for cumulative savings in unnecessary expenditure of 256,550 USD. Based on findings, the investigators concluded that smart cornea services can be used efficiently in reaching out to more patients in the rural community by enabling expert-guided correct diagnosis and ensuring proper follow-up. The role of smart cornea services especially in corneal foreign bodies, corneal ulcers, and keratoplasty follow-up cases was indispensable.

Vitamin D Deficiency and Dry Eye Disease: Causal or Factual Link?

Dr. Rashmi Deshmukh and colleagues from Narayana Nethralaya Hospital, Bengalaru India, studied the association between serum vitamin D levels with clinical features of dry eye disease (DED) including Ocular Surface Disease Index (OSDI), confocal microscopy features, and tear inflammatory proteins. The cross-sectional study included a total of 40 evaporative dry eye patients and 30 controls. Routine dry eye investigations including tear break-up time (TBUT), Schirmer 1 test, and ocular discomfort grading using OSDI questionnaire were performed. Confocal imaging (Heidelberg Engineering GmbH) using a 400 x 400 μm2 frame was done to assess the subbasal nerve plexus (SBNP) features in the central cornea, followed by quantitation (CCMetrics, UK). Corneal dendritic cell density (DCD) was estimated using Cell CountR (Heidelberg) from the confocal images. Total serum vitamin D and tear inflammatory factors were quantified by enzyme-linked immunosorbent assay (ELSIA) and cytometric bead array, respectively. TBUT and Schirmer 1 test values were significantly lower in DED patients than controls. OSDI score and corneal DCD were higher and nerve fiber density and branching was decreased in DED. There was a positive correlation observed between OSDI discomfort subscale scores and DCD in DED patients. Vitamin D levels exhibited an inverse association with OSDI scores and DCD. Interestingly, higher vitamin D was observed in tears compared to serum in the study cohort. Furthermore, increased levels of tear inflammatory cytokines including IL-17A/F, IFNγ and CP1 were observed in DED patients compared to controls. It is important to note that some of the controls though deficient in vitamin D did not exhibit signs and symptoms of DED. These results suggest that DED pathogenesis could be multifactorial and vitamin D level could be one of the factors [but not the only factor], that contributes to the disease process.

A Rabbit Model for MIGS Devices in Narrow Angles: A Pilot Study

There are no established animal models to investigate the safety and efficacy of minimally invasive glaucoma surgical (MIGS) devices in narrow angles. Optical coherence tomography (OCT) angle parameters for a variety of species (i.e. cat, owl monkey, beagle dog, minipig, rhesus monkey, cynomolgus monkey) are larger than those previously published in angle-closure glaucoma (ACG) patients. To address the issue, Dr. Saumya Nagar and colleagues investigated the rabbit as a potential animal model for assessing MIGS devices in narrow angles, including the XEN Gel Stent. To execute the investigation, OCT was performed in New Zealand white (NZW) rabbits (n = 6) and standard iridoconical angle assessments were performed. XEN surgery was performed in NZW rabbits, followed by ocular examinations to evaluate the angle fit and safety/tolerability for up to 3 months. The OCT demonstrated that the rabbit angle is much narrower compared with other larger laboratory animals examined to date. Angle parameters in the rabbit [values ± standard error of the mean (SEM)] yielded values in the range of those reported previously for ACG patients. XEN surgery in NZW rabbits was performed, while anterior segment (AS)-OCT imaging confirmed good stent placement in the angle without postoperative trauma to the corneal endothelium and iris. Based on these findings, the investigators concluded that NZW rabbits have anatomically similar angle parameters to patients with ACG and are a relevant model to investigate the safety and efficacy of MIGS devices in patients with narrow angles. The XEN, with its small diameter and soft gelatin composition, demonstrated no safety/tolerability issues in this pilot rabbit study and continued evaluation is warranted.

Potter No.: EX1-039 | PANEL NO.: 043

Poster No.: EX1-048 | PANEL NO.: 048
The Relationship among Obesity, Cerebrospinal Fluid Pressure, and Intraocular Pressure in a Korean Population

Dr. Jae Yeun Lee analyzed the relationship among body mass index (BMI), cerebrospinal fluid pressure (CSFP), and intraocular pressure (IOP) in a Korean population. The subjects included a total of 7750 participants aged ≥ 19 years and who participated in the Korean National Health and Nutrition Examination Survey from 2010 to 2011. Blood pressure, weight, height, and IOP were recorded and BMI, CSFP, ocular perfusion pressure (OPP), and translamine cribrosa pressure difference (TLCPD) were calculated. Based on BMI, participants were divided into normal weight (BMI, 18.5–23), low weight (BMI < 18.5), overweight (BMI, 23.0–25), and obese (BMI ≥ 25). Results: OPP and CSFP were highest in the obesity group rather than the normal group [coefficient: 6.96 (0.51), 95% confidence interval (CI) 5.96–7.96; coefficient: 3.95 (0.18), 95% CI 3.60–4.30, respectively]. IOP was also highest in the obesity group rather than the normal group [coefficient: 0.52 (0.21), 95% CI 0.11–0.93]. However, TLCPD was lowest in the obesity group rather than the normal group [coefficient: -3.43 (0.27), 95% CI -3.95 to -2.91]. The risk of high IOP (≥18 mm Hg) was 1.5 times higher in the obesity group than the normal group after adjustment for age and sex. The investigators tried to find out the association of BMI with IOP by analyzing CSFP, OPP, and TLCPD. Although BMI seemed to have association with IOP, further study is needed to find out the exact mechanism, according to the investigators.

A 10-Year Retrospective Review of the Clinical Features and Visual Outcomes of Acute Retinal Necrosis

To examine the presenting features, anatomic, and visual outcomes of acute retinal necrosis (ARN) in a cohort of polymerase chain reaction (PCR)-positive eyes, Dr. Stephanie Cheung and colleagues conducted a retrospective observational cohort study, which included 16 eyes of 15 patients diagnosed between 2006 and 2016 with ARN, who were PCR-positive for herpes simplex virus (HSV), varicella zoster virus (VZV), or cytomegalovirus (CMV). The subject patients were followed-up for at least 1 year. They were evaluated for baseline clinical characteristics, results of PCR viral DNA analysis, ocular sequelae including retinal detachment, and final visual acuity (VA). Results showed that VZV was detected in 80.0% (12/15) of eyes, HSV in 13.3%, and CMV in 6.7%. Presenting VA was generally poor (20/50 to >20/200 in 80%; >20/50 in 20%). Based on the full findings, the investigators concluded that VZV was the most common cause of ARN. Despite therapy, a significant number of patients developed RD, and visual prognosis was guarded despite surgical intervention.

Topographic Variations in Macular Retinal and Choroidal Thicknesses from Different Optical Coherence Tomography Modalities

The retina and choroid are important structures for the perception of light, common sites for ocular diseases, and important structures for vision. Retinal thicknesses (RT) and choroidal thicknesses (CT) are therefore important parameters used in the diagnosis and management of these diseases. Swept-source optical coherence tomography (SS-OCT) and spectral-domain OCT (SD-OCT) are the current gold standard devices used to measure these parameters. However, measurements using these devices are not comparable. Dr. Louis Lim and colleagues evaluated the topographic patterns and compare RT and CT measurements obtained from SS-OCT and SD-OCT in a prospective cohort of 125 participants. OCT scans were performed sequentially with Topcon DRI-OCT-1 and Spectralis OCT using standardized imaging protocols. RT and CT were independently measured by masked reading center certified graders, respectively. Paired t tests and intraclass correlation coefficients (ICCs) were performed. The data obtained yielded interesting results. RT and CT measurements obtained from SS- and SD-OCT devices differ significantly and should be accounted for when comparing measurements. Manual adjustment of segmentation boundaries can reduce the difference between CT measurements.
MIGS with ABiC

No more guesswork.

Don’t leave anything to chance. Only ABiC™ comprehensively addresses all aspects of potential outflow resistance – thus removing the guesswork inherent in stent-based MIGS procedures. ABiC™ utilizes a process of viscodilation of Schlemm’s canal to flush out the natural outflow channels, without damaging tissue and without leaving behind a stent or shunt – achieving an average reduction in mean IOP of 39%, combined with a 70% reduction in medication burden*.

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ABiC and iTrack:

A New Paradigm in Glaucoma Treatment

As innovation and science progress, so do traditional treatment paradigms. For glaucoma, this means a shift away from topical medications, laser and conventional surgery. Minimally invasive glaucoma surgeries (MIGS) have now stepped to the forefront as safe and reliable procedures to reduce intraocular pressure (IOP) and medication burden. MIGS are a group of procedures that work by enhancing aqueous filtration through natural outflow systems (either conventional or through the suprachoroidal space).

While other glaucoma procedures physically alter or bypass the mechanisms of aqueous outflow, one MIGS procedure – ab interno canaloplasty (ABiC; Ellex iTrack, Fremont, California, USA) – is truly comprehensive and addresses all aspects of potential outflow resistance. ABiC accesses, catheterizes and viscodilates the trabecular meshwork (TM), Schlemm’s canal, and the distal outflow system beginning with the collector channels. This restores the natural outflow process and ensures that the area of maximum outflow resistance for each patient is identified – regardless of where it resides.

Another advantage is that ABiC doesn’t use a stent or shunt, rather its process of viscodilation of the Schlemm canal flushes the natural outflow channels without damaging tissues. On average, ABiC achieves a 30% reduction in mean IOP, along with a 50% reduction in medication burden.

David Lubeck, M.D., founder and world-renowned surgeon at Arbor Centers for EyeCare, Illinois, USA, finds ABiC useful because of its versatility. The procedure can be used with other MIGS options, and it functions synergistically with selective laser trabeculoplasty (SLT).

“I use it in combined operations – for example in patients with cataract and open-angle glaucoma, as well as in stand-alone operations,” explained Dr. Lubeck. ABiC is often referred to as a flexible option because it is atraumatic and doesn’t preclude future MIGS or other surgeries.

ABiC is performed just in three steps. First, the surgeon will perform a paracentesis a couple of clock hours away from the future goniotomy site. From there, an ophthalmic viscosurgical device (OVD) is injected into the anterior chamber to maintain stability. Next, a 27-gauge needle is used to perform a small goniotomy before inserting the iTack microcatheter (Ellex iTack, Fremont, California, USA) into Schlemm’s canal. iTack is the only illuminated, micron-scale microcatheter designed to viscodilate Schlemm’s canal during MIGS with ABiC.

During the ABiC procedure, the iTack is threaded through the canal with micro-forceps, which provides real-time tactile feedback of the health and patency of the canal. In addition, the iTack’s illuminated tip allows the surgeon to continually monitor its location during canal circumnavigation, which confirms that it is safely in the canal. In the final step, the iTack is withdrawn and the precisely controlled delivery of Healon/Healon GV separates the compressed tissue planes of the TM, triggering the withdrawal of any herniated inner wall tissue from the collector channels. Surgeons typically average 30-40 clicks when using Healon (Johnson & Johnson, New Brunswick, New Jersey, USA).

Dr. Lubeck added that he has performed ABiC about 100 times in the past year, and finds it to be a reliable procedure. “It is non-destructive and addresses obstruction at all points in the drainage system,” he said. “In addition, it does not change the anatomy going forward.”

This article has been supported by an educational grant from Ellex.
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TODAY

Lunch Symposium

Ultimate Source of Value: Topcon’s Posterior Imaging Device for Researchers and Clinicians

Come to S421!
Topcon’s DRI OCT Triton Series Receives 510(k) Clearance

by Brooke Herron

Topcon Medical Systems (Oakland, NJ, USA) – a leader and technical innovator in ophthalmic instrumentation – has received 501(k) clearance from the U. S. Food and Drug Administration (FDA) for its latest OCT system: the DRI OCT Triton Series (including the DRI OCT Triton and the DRI OCT Triton Plus).

Featuring an easy-to-use image capture, a 1-micron, 1050nm light source and a scanning speed of 100,000 A-scans per second, the Triton is the first commercially available Swept Source OCT with multi-modal imaging capabilities in the United States. With a true color fundus camera and the diagnostic power of Swept Source OCT, it incorporates a built-in retinal camera and eye-tracking during capture of selected scans.

“The revolutionary features of the DRI OCT Triton Series provides exceptional visualization of the entire tomogram, allowing for a better understanding of many ocular pathologies and enhancing the standard of patient care,” said Mr. John Fujita, president of Topcon Medical Systems.

Beyond the anterior segment, the DRI OCT Triton can also visualize deeper pathology in the posterior - like the choroid and sclera - without being obscured by media opacities or hemorrhage. Dr. Richard Spaide from the Vitreous Retina Macula Consultants of New York says that Swept Source OCT has massively increased his diagnostic capabilities, and provides uniform and detailed information, while remaining simple to operate. In fact, by pressing a single button, the instrument can visualize from the vitreous to the sclera with both sensitivity and speed, producing high-resolution fundus images with clear retinal vessel and macular mapping, which allows for Pin-Point Registration.

The instrument’s widefield OCT scanning (12mm x 9mm) also provides fully automated mapping and illustration of both the macula and optic nerve in a single scan, thus potentially reducing the number of scans the patient needs. In addition, the instantaneous capture of a high-density data cube (comprised of 512 B-scans), reduces interpolation between slices and produces the most revealing imagery, while the reference database is useful for annual or follow-up examinations.

The Triton combines Topcon’s years of expertise in OCT imaging, color, red-free, FA and FAF imaging with the diagnostic power of Swept Source OCT. “The ability of the Topcon Triton to provide so many imaging modalities in one machine is a great advantage to future system-wide diagnostics and directly enables multi-modal imaging approaches,” added Dr. Spaide.

The new DRI OCT Triton Series will be on display at the following shows: the International Retinal Imaging Symposium (IRIS) on Feb. 20th in Los Angeles, CA, USA and the American Glaucoma Society (AGS) from March 1st - 4th in New York, NY, USA. For more information, visit www.topconmedical.com.
Believe us, here at PIE Magazine we know congresses can be busy and exhausting (and we mean that in the best way possible). This year’s APAO – with its prestigious keynote speakers, educational lectures, innovative posters and entertaining social functions – will be no different. However, we feel it’s important – imperative, really – to not only work hard, but to play hard too. And Hong Kong, also known as “Asia’s World City,” is the ideal location to do just that.

With elements of its traditional Chinese and British heritage interwoven in its language and food, Hong Kong is both vibrant and rich in culture. Visitors will not only find a shopping mecca (as it’s considered the largest metropolis for luxury goods and status symbols in Asia), but a foodie paradise too, with one of the highest numbers of restaurants per capita (one restaurant for every 600 people), and some of the cheapest Michelin-starred eats in the world.

At first glimpse, the bright lights, soaring skyscrapers and bustling streets might overwhelm even the most journeyed traveler. In fact, it has the most skyscrapers in the world, with 8,000 buildings with more than 14 floors – nearly twice as many as in New York. However, visitors will find it easy to navigate, with convenient transport options (like trains and ferries), as well as inexpensive taxis – all of which makes exploring the city only moderately challenging for newcomers. In addition, the Hong Kong Convention and Exhibition Centre (HKCEC) is conveniently located downtown (in the heart of the business district), so APAO attendees will find themselves close to some of the area’s top points of interest. At PIE, we know how valuable your time is, so we’ve put together a handy list of the top sights in Hong Kong. We hope you find this a useful resource to refer to as you explore the city in your downtime.

**PIE’s Top 6 Things to Do in 4 Days in Hong Kong**

**#1 The Peak Tram and Victoria Peak: An Iconic Hong Kong Experience**

Located in the Central district (about a 20-minute car ride from the HKCEC), the Peak Tram leading to Victoria Peak tops most Hong Kong must-do lists. Standing at an impressive 552 meters, it is the highest point on the island and provides panoramic views of the city, stretching from the skyscrapers of Central to the mountains of the New Territories.

There are two ways to reach the summit – via taxi (or Uber) and the Peak Tram. Taking the Peak Tram – a 125-year-old, gravity-defying funicular, which rises almost vertically and stops at the Peak Tower – is the ideal way to reach the top. However, there can be long lines for the tram (which runs every 10 to 15 minutes from 7 a.m. to midnight), which may not suit the busy schedule of an APAO attendee. If you would like to take the Peak Tram, it’s recommended to book in advance on a website like Viator.com to avoid waiting in the time-consuming line. Otherwise, taxis are a suitable alternative.

Fun fact: The Peak Tram opened in 1888 and is the first cable funicular in Asia. Today, it remains one of the steepest and oldest cable railroads in the world, and serves an average of more than 11,000 people every day.

Once at the top, marvel at the breathtaking skyline from the Peak Tower and Peak Galleria, which has an admission-free viewing deck. If you have a little more time, take a hike around the 3.5-kilometer Peak Circle Walk for an even better view.

In addition to The Peak, there is another opportunity to get a bird’s eye view of Hong Kong: from the Sky 100 Observation Deck. You’ll have to take a ferry (more on this later) to get there from the HKCEC, and it’s located in the International Commerce Centre (ICC), Hong Kong’s tallest building. This indoor observation deck (on the 100th floor, naturally), provides a 360-degree view of Hong Kong in its entirety. Visit on a sunny day for photos with clear skies, or stop in at night to snap the city’s famous (and stunning) lights. If you make it there for cocktail hour, have one at Ozone on the 118th floor.


**#2 Tian Tan Buddha: Hong Kong’s Most Recognizable Attraction**

If you can spare a few hours, consider taking a trip to Lantau (about one hour from the HKCEC) to visit the Tian Tan Buddha (or the Big Buddha). Renowned as Hong Kong’s most recognizable attraction and sitting at 34 meters, the Big Buddha is the tallest seated bronze Buddha statue in the world. To reach the Big Buddha, which is a representation of Lord Gautama, visitors must climb 268 steps – so keep in mind that a bit of exercise is involved.

Next to the statue is the Po Lin Monastery, one of the world’s most important Buddhist sanctums, which attracts hundreds of thousands of tourists on its own accord each year. Although the monastery was built in 1924, it is still being expanded today and many of the buildings are new.

**#3 Man Mo Temple: Top Taoist Temple**

If you’re looking for an activity that won’t take up too much time, then head to Man Mo Temple. Just a short 10 minutes away from HKCEC (by car), this Taoist temple is a mid-19th century historic building and a declared national monument. This temple was built in 1847 during the Qing dynasty by wealthy Chinese merchants and is dedicated to two gods: Man Cheong (god of literature) and Mo Tai (god of war). In addition to being a place of worship, Man Mo Temple was historically used as a court of arbitration for local disputes between the Chinese and the colonists.

**#4 Star Ferry: Get your cameras ready**

Beyond being the fastest way to travel between Tsim Sha Tsui and Central or Wan Chai, a ride on the Star Ferry also provides an excellent opportunity to photograph the iconic Hong Kong skyline and Victoria Harbour. The ferry terminal is situated.
I just took a look at the tomography. These values call for caution. I don’t think I would operate.

Hey Corvis ST
I just took a look at the tomography. These values call for caution. I don’t think I would operate.

Hi Pentacam
The biomechanics looks good, though. The cornea is very stable. I don’t see any problem with operating.

O.K. Together now
Tomography and corneal biomechanics together make the decision easier: Surgery could be an option.

#5 Temple Street Night Market: It’s souvenir time
If you’ve made the crossing from Hong Kong Island on the Star Ferry, you might as well take in Hong Kong’s legendary Temple Street Market – one of the few night markets in Hong Kong. After the sun sets, the vendor stalls pop up and the tourists descend to bargain their way into an “I ‘heart’ Hong Kong” t-shirt. In addition to the trinkets – like fake Gucci purses and pirated CDs – you’ll also find fortune-tellers, herbalists and sometimes even a complimentary open-air Cantonese opera performance.

This would also be the place to go if you have a hankering for street food. Visitors will find anything from noodles to seafood, and hotpots to full-course meals.

Temple Street Market extends from Man Ming Lane in the north to Nanking Street in the south, and is cut in half by the Tin Hau Temple complex. While it does open daily at 11 a.m., it doesn’t really get going until about 6 p.m., and the stalls begin to shut at 11 p.m.

#6 Ocean Park Hong Kong: The Original Theme Park
Yeah, yeah … I know we said “Five Top Things to Do,” but we couldn’t resist adding in this last one: Ocean Park Hong Kong. While Disneyland is also nearby (and quite amazing in its own right), we’d be remiss if we didn’t at least mention Hong Kong’s oldest and most beloved theme park. With rollercoasters, marine animals, exotic birds and two giant pandas (Ying Ying and Le Le), it’s well worth a visit – and it’s only 10 minutes from HKCEC!

Well, that’s it. We know there is much more to do in Hong Kong than what we’ve mentioned above. However, we hope this will give you a quick highlight reel of the top attractions to add a little extra adventure to APAO 2018.
BLINK and you won’t MISS IT!

MIGS WITH iTRACK

iTrack™ is the only illuminated, micron-scale microcatheter designed to viscodilate Schlemm’s canal during MIGS with ABIC™. During the ABIC™ procedure the iTrack™ is threaded through the canal with micro-forceps, providing real-time tactile feedback of the health and patency of the canal. As the iTrack™ is withdrawn, the precisely controlled delivery of Healon/Healon GV separates the compressed tissue planes of the trabecular meshwork, and also triggers the withdrawal of any herniated inner wall tissue from the collector channels. Featuring an illuminated tip, the iTrack™ allows you to continually monitor its location during canal circumnavigation – offering peace of mind that it is safely in the canal.

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