WOC2018 kicks off with Opening Ceremony on Saturday

by Ellen Stodola EyeWorld Senior Staff Writer/Digital Editor

The WOC2018 Opening Ceremony took place on Saturday evening, and was followed by a Welcome Reception for congress attendees.

During the ceremony, many of those involved with the ICO and the organization of WOC2018 addressed attendees. Hugh Taylor, MD, Melbourne, Australia, ICO President, welcomed those in attendance to the 36th WOC. The first International Congress of Ophthalmology was held in 1857, he said, and that makes it the longest continuous medical meeting in the world.

“We’ll have about 10,000 delegates joining from more than 140 countries around the world,” he said, adding his thanks to all delegates for making the journey to Barcelona for WOC2018. We are excited for the many opportunities that will take place and the opportunity to learn from each other, he said.

Dr. Taylor also recognized the work of the Scientific Program Committee to prepare for this year’s meeting, which he said will include over 350 sessions and symposia covering all subspecialties. More than 90 national and subspecialty societies have organized sessions at the meeting, he added. Additionally, other programming at WOC2018 will include hands-on courses to develop surgical skills and techniques in a wet lab environment.

“None of this would be possible without the support of our principle sponsors,” Dr. Taylor added.

There will also be an exciting array of interactive sessions and fun, including a Cultural Night, as well continued on page 3

Pros, cons, and evidence in femtosecond laser cataract surgery

by Ellen Stodola EyeWorld Senior Staff Writer/Digital Editor

In a session on Saturday morning highlighting cataract surgery, presenters discussed femtosecond laser technology.

During the session, Gerard Sutton, MD, Sydney, Australia, discussed capsulotomy in laser refractive cataract surgery, specifically emphasizing studies relating to this topic. Dr. Sutton noted that he uses the femtosecond laser for most of his cataract surgery, specifically the LenSx (Alcon, Fort Worth, Texas, U.S.) platform.

He said there is evidence that the femtosecond laser is kinder to the endothelium, but there are also many studies with criticism of the laser.

Dr. Sutton noted that the femtosecond laser allows him to get the procedure done in the same amount of time it takes for his staff to get a patient out of the OR and the next patient in.

He said that decompressing the anterior chamber before hydrodissection is kinder on the capsule as a whole.

“So, what is the ideal capsulotomy? Dr. Sutton said the strongest part of the capsule is in the mid region; you want it to overlap the optic to reduce PCO and have good lens stability. Ideally, you want the capsulotomy to be 5.0–5.5 mm, he said.

Dr. Sutton also noted studies looking at maximum stretch force comparison, rim stability, and edge strength.

He said when considering the ideal capsulotomy parameters, energy, spot size, and separation are all very important if you’re using femtosecond laser.

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Pros continued from page 1

In conclusion, he said that a laser capsulotomy is weaker than a well-positioned, perfect sized and shaped CCC. He also pointed out that there is variation between platforms and optimizing energy delivery is essential. The AC tear rate is lower in experienced hands, Dr. Sutton said, and AC strength and tear rate is not a reason to avoid laser surgery as a whole.


Dr. Chang particularly highlighted why he doesn’t use FLACS, stressing that one of the biggest factors in the U.S. is reimbursement. You’re not allowed to charge for things that improve safety or simply for high-tech equipment, he said. You can only charge for things that are refractive. So, it’s difficult if the patient has to pay a lot of money for this technology.

Cataract complications that are serious are rare, Dr. Chang said, and he said that you really need large numbers to show significance.

Dr. Chang mentioned the EUREQUO study of around 2,800 consecutive cases comparing phaco and femto, which found a small, but significant, difference supporting the fact that complications were higher with the femtosecond laser. Ultimately, the trial showed that femto did not outperform phaco, Dr. Chang said. He also mentioned the FEMCAT study, which found no statistical difference between the femtosecond laser and phaco.

He also mentioned looking at the Cochrane Library for evidence on comparison of femto and phaco and noted that, even there, there is low-quality evidence because larger numbers are needed in study.

Dr. Chang did note that his aim is not to talk anyone out of using the femtosecond laser; it’s surgeon preference, he said. However, he said it’s important to realize that the difference is economical, and there is a cost associated with using the femtosecond laser.

Meanwhile, Dr. Donaldson said that she likes to use the femtosecond laser for a number of reasons. She specifically mentioned some of the potential benefits: rounder, more consistent capsulotomy; more consistent effective lens position; reduction of cylinder with AK; less phaco energy; and greater safety. Dr. Donaldson also stressed that she finds the femtosecond laser a great tool for complicated cases. Overall, she said that she uses the laser for less trauma, for creating the perfect capsulotomy, and for astigmatism correction. EW

Peter Wiedemann, MD. Leipzig, Germany, the ICO Treasurer and incoming ICO President, also spoke, calling the meeting “a showcase of ophthalmology” and “everything you want from a congress.” No other meeting in ophthalmology offers such an international convention of peers and industry representatives, Dr. Wiedemann said.

He recognized Dr. Taylor’s contribution during his time as ICO President. Dr. Wiedemann also mentioned that the next meeting, WOC2020, will take place in Cape Town, South Africa, in June 2020. “This is a huge opportunity,” he said, and he encouraged everyone to attend to help make that meeting a success in 2020.

Also addressing WOC2020 was Kgao “Eddie” Legodi, MD, Pretoria, South Africa, the ICO Vice President, and WOC2020 President. EW
Corneal lamellar surgery:
tips and clinical outcomes of various techniques

by Liz Hillman EyeWorld Senior Staff Writer

Optimizing outcomes of corneal lamellar surgery, including different techniques, pearls, and outcomes, was the topic of a subspeciality day session Saturday morning.

Jorge Alio, MD, PhD, Alicante, Spain, presented research about a corneal stroma regeneration technique for keratoconus patients. He and his colleagues, he said, were looking for new and better options that were less invasive than corneal transplantation.

Dr. Alio and his coinvestigators identified stem cells from adipose tissue as the best autologous stem cell option that would produce corneal collagen. After performing animal trials with these stem cells, finding it did in fact produce human collagen in the rabbit cornea, fur-

other research showed that acellular corneal laminas would be the best scaffold for cellular regeneration.

A pre-clinical trial, in which only acellular corneal laminas were inserted through a femtosecond laser-created pocket vs. acellular lamina with adipose stem cells, showed an improvement in visual and keratometric parameters, Dr. Alio said. While there was initial visual loss at 1 month, transparency progressively increased. There was also significant improvement in stromal thickness parameters. Confocal microscopy showed a significant increase in cells in both groups, including the group without stem cells, showing that the patient’s own cells repopulated on the scaffold as well.

Overall, Dr. Alio said this research has shown the feasibility of corneal stromal enhancement based on stem cell therapy. A multicenter clinical trial sponsored by the Spanish Ministry of Health is beginning this year.

While the research was performed on advanced keratoconus patients who would otherwise need a graft, Dr. Alio said he thinks there are different indications for this technique, such as in earlier keratoconus disease or other corneal dystrophies.

Following, Priya Narang, MD, Ahmedabad, India, described a double infusion cannula technique that could be used to allow for secondary IOL fixation followed by endothelial keratoplasty. The technique involves the first cannula (a trocar cannula) being placed for fluid infusion at the pars plana site and the second (either an anterior chamber maintainer or a trocar anterior chamber maintainer) placed in the anterior segment for fluid and pressurized air infusion.

Dr. Narang showed how this technique worked in a case of pseudophakic bullous keratopathy with a secondary IOL. After making two scleral flaps, debridging the corneal epithelium (to enhance surgical visualization in this case), the first cannula was placed at the pars plana site, and a glued IOL procedure was performed. Afterward, a four-throw pupilloplasty was performed, which Dr. Narang said helps close all the gaps present between the edge of the IOL and the iris tissue. A pupilloplasty is not necessary if the shape of the iris is normal and blocks the edges of the optic, Dr. Narang explained later.

The secondary cannula—Dr. Narang said she prefers a trocar anterior chamber maintainer—is placed and pre-Descecmet’s endothelial keratoplasty performed.

What’s happening today

Sunday’s events

Late Breaking News Free Paper Sessions I and II
8:30 to 10:00 hrs. and 10:30 to 12:00 hrs. in Hall 8.0, Room 28
These two paper sessions will highlight some hot topics in ophthalmology, with free papers covering a variety of subspecialties.

WOC Day of Landmark Achievements I, II, III, and IV
8:30 to 10:00 hrs., 10:30 to 12:00 hrs., 14:00 to 15:30 hrs., and 16:00 to 17:30 hrs. in Hall 8.0, Room 16
Throughout the day, four sessions will be presented on landmark achievements in different ophthalmic subspecialties.

Robert Ritch Forum on Medicine of the Future: Nanotechnology, Tissue Engineering, and Artificial Intelligence
10:30 to 12:00 hrs. in Hall 8.0, Room 6
This first-time session will explore the fields of nanotechnology, tissue bioengineering, and artificial intelligence.

Cataract Surgery Olympics – WOC Barcelona 2018
16:00 to 17:30 hrs. in Hall 8.0, Room 6
This 90-minute program will feature four regional international teams of cataract surgeons (North America, Latin America, Asia-Pacific, and Europe/Middle East) competing in a video program highlighting management of cataract complications. An international panel of four judges (one representing each region) will score each team. The audience will then vote for the overall individual event and team winners using audience response pads. The four “events” for the session include “Cataract Pentathlon,” competition for best use of surgical devices; “Cataract Marathon,” competition to see who presented the most challenging and agonizingly difficult case; “Cataract IOL Gymnastics,” competition based on demonstration of surgical skill and or creative maneuvers in managing IOL complications; and “Freestyle Cataract Surgery,” an open category.

During a session about lamellar corneal surgery, Dr. Alio (left) discussed research involving a corneal regeneration technique, Dr. Narang (middle) described a two cannula infusion technique for performing glued IOL followed by EK, and Dr. Mehta explained how to manage stromal complications after EK.
The double infusion cannula technique prevents hypotony and intraoperative pressure fluctuations; assists in graft unrolling; promotes adherence to the recipient bed tissue; and prevents air from getting into the vitreous cavity and loss of air tamponade in the anterior chamber, Dr. Narang said.

Mouamen Seleet, MD, Cairo, Egypt, discussed long-term results for big bubble DALK as a treatment for moderate to advanced keratoconus. Overall, big bubble DALK in a study of 105 consecutive eyes over 18 months was found to be an effective, reproducible, and relatively safe surgical treatment for these patients. However, it was determined that leaving the sutures in as long as possible, in the case of a good refractive outcomes, was advisable.

Indications for suture removal at 12 months during the study period included a refractive cylinder of more than 4 D, anisometropia, suture-related complications, or a planned secondary refractive surgery. Data showed that those who had their sutures removed had worse uncorrected and corrected visual acuity when compared to those who still had their sutures.

Alain Saad, MD, Paris, France, co-chair of the session, asked if sutures would be removed if the patient had to have cataract surgery. Dr. Seleet said, yes, the sutures would need to be taken out first to allow the cornea to stabilize so the right lens could be chosen. He advised waiting at least 3 months after suture removal in these cases.

“It’s going to be a one-time procedure, so let’s give them as much time as possible after suture removal,” Dr. Seleet said.

While endothelial keratoplasty has “revolutionized corneal surgery,” Jodhbir Mehta, MD, Singapore, said in his presentation, it doesn’t replace the stroma, which can result in patients presenting later with scarring. While some milder cases could have EK performed, cases following EK where there is later stromal scarring could benefit from DALK for visual rehabilitation. It can also be used for tectonic and therapeutic cases as well, maintaining a functional endothelium. Dr. Mehta said long-term results have shown good graft survival and visual acuity.

Other topics discussed during the session included intraoperative OCT used in lamellar keratoplasties, hybrid DMEK, and infant keratoprosthesis.

Late Breaking News

Sunday’s program will feature two “Late Breaking News” free paper sessions, taking place from 8:30 to 10:00 hrs. and 10:30 to 12:00 hrs. in Hall 8.0, Room 28. Topics to be covered include residency training, results on ocular neuro-stimulation for dry eye patients, CIRCLE enhancement after myopic SMILE, teaching diabetic retinopathy screening in low resource settings, retinal and optic nerve changes in microcephaly, and more.
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A team of experts kicked off the World Ophthalmology Congress on Saturday morning as part of an invited symposium that debated hot topics in refractive surgery, including the use of intracorneal ring segments (ICRS) and diverse management options for corneal ectasia. According to Berthold Seitz, MD, Homburg, Germany, ICRS are minimally invasive and reversible and are indicated in cases of moderate keratectasia, contact lens intolerance, centrally clear cornea, eyes that have a steep K value, and that have a corneal thickness of at least 400 μm at the implantation site. ICRS can help improve both corrected and uncorrected visual acuity and seem to inhibit the progression of ectasia. He said that combining the use of ICRS with crosslinking (CXL) was feasible, however, CXL alone would not help improve visual acuity. Finally, he said that it was far better that the implantation tunnel be created with a femtosecond laser, rather than manually.

Rafael Rajpal, MD, McLean, Virginia, U.S., who co-chaired the session discussed accelerated CXL for the management of corneal ectasias, observing that pulsed treatments allowed for an increased treatment effect with a deeper demarcation line compared to continuous CXL treatments. A Phase III study for FDA approval is currently underway using combined epi–on treatments with pulsed CXL, which will hopefully have outcomes that mirror epi–off treatments. The combined treatments increase oxygen intake while reducing the duration of the procedure and together they can give a greater demarcation line. He noted that biological systems showed different reactions to even the most precisely calculated treatments.

Addressing the question as to whether it was alright to combine CXL with other surgeries, Rafael Barraquer, MD, PhD, Barcelona, Spain, answered “yes.” Corneal CXL could be used as a standard or complementary procedure, for instance, post–LASIK to prevent ectasia or along with ICRS. Together with ICRS, CXL increases both efficacy and corneal stability and can be done either before or after ICRS. The effects of ICRS are enhanced by CXL, Dr. Barraquer said. A same day combination, however, may delay healing as well as visual acuity recovery. He recommends routinely adding CXL after ICRS in young keratoconus eyes or if progression is noted despite ICRS.

According to his father, el Barraquer, MD, PhD, he specifically wanted to recognize Gustavo Tamayo, MD, Bogota, Colombia, argued the pros and cons of topography–versus wavefront-guided ablations. Topography-guided ablations corrected only the shape of the cornea, while wavefront corrected the shape and the refraction at the same time. In topography-guided, the correction of the refraction error was based on the subjective analysis, while in wavefront treatment there is no place for subjectivity. He believes that CustomVue ablation with iDesign (Johnson & Johnson Vision, Santa Ana, California, U.S.) has become the safest and most successful surgical procedure, and he personally achieved a satisfaction rate of 98% in over 1,000 eyes, with no case of best corrected visual acuity reduction. Even in high myopia cases, 87% of his patients achieved 20/20, and 100% were 20/25 or better. He said that treatment of irregular astigmatism was possible with this technique as well.
Experts debate controversies in cataract surgery

Femtosecond laser-assisted cataract surgery (FLACS), intracameral antibiotics, extended depth of focus (EDOF) or trifocal IOLs, and safety of refractive lens exchange were debated during “Controversies in Cataract Surgery.”

“Femtosecond cataract surgery is still a burning issue in ophthalmology,” Zoltan Nagy, MD, Budapest, Hungary, said, taking a pro-FLACS stance.

Throughout his presentation, Dr. Nagy cited research that he thinks shows the benefits of using femtosecond technology in cataract surgery. The femtosecond-created capsulotomy is more accurate and reproducible in diameter and circularity, he said, resulting in better centration and less lens tilt. Dr. Nagy also showed data that suggest FLACS results in less trauma to corneal endothelial cells, less increase in macular thickness, more predictable corneal incisions, and more predictable surgically induced astigmatism.

What’s more, the femtosecond laser can reduce phaco energy in the eye by fragmenting the lens.

Will the femtosecond laser replace phaco technology? No, Dr. Nagy said, but he does think it can provide a safer, effective cataract surgery with more stable and predictable outcomes. Dr. Nagy said he “dreams of a compound femtosecond laser” for cornea and cataract use and looks forward to the use of femtosecond technology for IOL adjustment as well.

Cedric Schweitzer, MD, PhD, Bordeaux, France, took the opposite side.

“I’m going to show you that today, very precise cuttings do not provide meaningful results for patients,” he said.

In terms of complications, posterior capsule rupture (PCR) is the most common intraoperative complication, but given the stage in which it usually occurs, Dr. Schweitzer said, use of the femtosecond laser would not necessarily act as a preventative measure. What’s more, he cited a study that showed more PCR with FLACS than standard phaco.

Can FLACS improve visual or refractive outcomes? Dr. Schweitzer said research has shown a small advantage of FLACS at 6 months postop in corrected distance visual acuity, but there was no significant difference in terms of uncorrected distance visual acuity. While it’s likely that FLACS decreases the rate of IOL tilt, Dr. Schweitzer said that it’s unlikely that its capsulotomy actually improves lens positioning and postop anterior chamber depth.

Femtosecond laser application is also limited in certain cataract cases, such as small pupils, intraoperative floppy iris syndrome, corneal opacities, zonular instability, and trauma, he said. What’s more there are patient flow issues and considerably more expense with FLACS.

George Beiko, MD, St. Catharines, Canada, co-chair of the session, said based on current research comparing FLACS and manual phaco surgery, he’s on the con side of using FLACS.

“I don’t think at this point it’s a technology we can generalize,” he said, noting, however, that it could be useful in certain cases.

Gerd Auffarth, MD, Heidelberg, Germany, also a session co-chair, said that while he’s not advocating everyone buy a femtosecond laser, he believes the technology could lead to an application that could be useful on a broader scale.

“I think there is some science behind it that, in the long run, may lead to developments where we all could benefit, so I would still like to explore femto technology in that area,” he said.

Next, Steve Arshinoff, MD, Toronto, Canada, and Andrzej Grzybowski, MD, PhD, Olsztyn, Poland, debated the use of intracameral antibiotics. Dr. Arshinoff thinks the wide breadth of published studies show an “overwhelming” benefit in favor of intracameral antibiotics, but, he noted, the infection rate will never get to zero.

During his presentation, Dr. Arshinoff also offered data supporting the use of moxifloxacin intraocularly for endophthalmitis prophylaxis, compared to vancomycin and cefturoxime, which he noted are less effective due to their being time dependent and not dose dependent.

Dr. Grzybowski argued that the published research shows a disproportionate effect of intracameral antibiotics over topicalics, ranging from only 1% more effective to 20 times more effective. All, except the ESCRs study, were retrospective, he noted, making them much less reliable. What’s more, none of these studies started with an already low endophthalmitis rate.

“We don’t have evidence when you have low endophthalmitis rates that there is any effect of intracameral antibiotic use. This is one of the points we have to consider, efficacy of intracameral antibiotics when the endophthalmitis rate is lower ... compared to when we have a high endophthalmitis rate,” he said.

There is also data in the ESCRs study that suggest certain factors were associated with higher endophthalmitis rates but are still performed today. Use of clear corneal incisions, for example, silicone IOLs were associated with a six times higher and three time higher endophthalmitis rate, respectively.

“We found some of the results of ESCRs study more compelling than others,” he said, adding later that he has done research that shows the endophthalmitis rate in countries not using intracameral antibiotics is similar to those using intracamerals.

Dr. Auffarth and Ahmed El-Massry, MD, PhD, Alexandria, Egypt, debated whether EDOF or trifocal lenses were better for patients seeking presbyopia correction at the time of cataract surgery. Overall, Dr. El-Massry said they aren’t against either of these lenses because both are performing well. However, he thinks trifocals have an edge in that they can truly give patients near vision without spectacles, while EDOF patients are more likely to need readers for near vision. Dr. Auffarth said mini-monovision can be employed with EDOF lenses to improve near vision in these patients.

“As you can see we don’t have the perfect solution for presbyopia correction,” Dr. Beiko said. “We have fairly good solutions but nothing comes without a price or something the patient may be willing to accept.”

Finally, Mohammed Alaa Eldanasoury, MD, Jeddah, Saudi Arabia, and Dr. Beiko discussed perspectives on whether refractive lens exchange is safe. Dr. Eldanasoury said, overall, he thinks refractive lens exchange is a safe option.
Myopia management and control

A session on Saturday morning focused on topics pertaining to refractive errors, myopia, and high myopia epidemics.

Ian Flitcroft, MD, Dublin, Ireland, spoke on “What Role Will Genetic Testing and Environment Change Have in the Era of Active Myopia Management.” He first noted that it was first pointed out nearly 20 years ago that myopia was an important topic to be discussed. To consider the era of active myopia management, he said that there are a variety of factors to consider: treatments to be using, who to treat, and the goals of treatment.

Dr. Flitcroft said that primary prevention of myopia hasn’t been looked at much. Acceleration of eye growth starts before myopia, he said, and is most rapid in the first few years. It progressively declines until final stabilization.

Dr. Flitcroft went on to discuss the concept of pre-myopia: a refractive state of an eye of less than or equal to +0.75 and greater than -0.5D where a combo of axial growth data, prior change in refraction, or identifiable risk factors provide a sufficient likelihood of future development of myopia to merit preventative interventions. Currently, the best risk factor is age, he said.

He also went on to discuss genes and genetic prediction. Do we just need more genes? Or a new way of thinking about genes we’ve found? Genes regulating eye growth are part of a system that adapts the eye to its optical environment, Dr. Flitcroft said.

Even though ocular refraction (the quantitative trait underlying myopia) is highly heritable, the recent change in the incidence of myopia is obviously not the result of short-term shifts in the genetic makeup of the population, he said.

Gene-environment interaction is the missing link, Dr. Flitcroft said. The genetic machinery that controls eye growth is designed to make emmetropes, he said, and these genes are now operating in a different environment with a different outcome.

We need to understand how genes interact with heritability, Dr. Flitcroft said. “If we’re going to prevent myopia, we have to be able to predict who will become myopic,” he said. Goals for the future, Dr. Flitcroft said, should be to avoid low myopes becoming high myopes, to limit myopic progression for everyone, and to prevent myopia as a whole.

Su Ann Tay, MD, Singapore, highlighted safe and effective myopia control, particularly addressing if lose dose atropine provides a solution.

Atropine is a non-specific muscarinic antagonist, she said, and it’s been used to control the progression of myopia since the 1960s. However, the mechanism of action is unknown.

Dr. Tay also discussed the effectiveness of atropine. It has a dose-related effect on the control of myopia, with ranges from 70 to 100% reduction in myopia progression.

Dr. Tay referenced several studies showing reduction of myopia using atropine, however, she also noted that, despite treatment, many patients may still progress. She also stressed that studies show that low dose atropine is effective, but not in everyone.

She highlighted a clinical audit done at her center using 0.01% atropine on children. Age was found to be an important factor, with younger children progressing faster than older children, she said.

Dr. Tay said, at her center, when speaking to parents, they point out that the effect of atropine may vary with age, and younger children may require a higher frequency/dose. In the age when most children present, between ages 7-9, she said that 50% will have a reasonable result, another 25% will progress between 1.0-1.5 D, and 10% will not respond as well, despite a higher dose. Children may require drops until they are 12-13 years old, she said, but how to tailor drops will also depend on each patient’s individual response.

for hyperopic or myopic patients, provided they have some form of dysfunctional lens syndrome from presbyopia and/or early lens opacities. The clarity of the lens and accommodation should be assessed in these candidates. Patients with a clear, accommodating lens, he said, would not be happy with a refractive lens exchange.

Dr. Beiko, however, said surgeons can be “lied into a false sense of security” with refractive lens exchange based on good short-term data, but long-term data is not as available. He said patients with higher scatter preoperatively will have that scatter postoperatively as well. With multifocal IOLs, that scatter will be higher too, he noted. What’s more, multifocal IOLs can be associated with dysphotopsias, Dr. Beiko said.

In terms of safety, Dr. Beiko said the risk for retinal detachment is higher in these patients as well; cataract surgery itself carries a risk and younger patients and axial myopes are at higher risk as well. There are also risks of decreased optical quality over time, which could lead to accidents, and for IOL decentration or dislocation over time.

In his presentation, Dr. Eldanassoury said that the research showing risk of retinal detachment after refractive lens exchange is about 2 decades old and, he noted later, that while the objective scatter index might not improve with surgery, the patient does report having better vision.

Dr. Auffarth said while there are possibilities for this procedure, surgeons have to make a risk-benefit judgement call.

“Explain to the patient this is not like a LASIK procedure. ... There are a lot of intrinsic problems that can occur. If you are careful, you can be very successful in [it].” EW
n invited symposium on Saturday morning elucidated current approaches to the surgical management of astigmatism. Astigmatism is present in at least 40% of the cases that present for refractive surgery and according to the session’s co-chair George Chang, MD, Hong Kong, femto-phaco is the procedure of choice. In over 3,000 cases of femtophaco that were carried out as part of the Hong Kong Experience using the VICTUS femtosecond laser (Bausch + Lomb, Bridgewater, New Jersey, U.S.), surgeons need to follow three steps to treat astigmatic eyes: get good centration (meaning good eye position with no tilting), capture the corneal steep axis (eye drops, reference mark, and capture), and then perform astigmatic keratotomy (AK). He said that his anterior penetrating AK technique is simple and safe and allows for more astigmatism correction by enlarging the main wound.

The use of toric IOLs in eyes with keratoconus presents a special case scenario, and according to Gaurav Prakash, MD, Abu Dhabi, United Arab Emirates, it is important to identify which patients stand to benefit from them first. The unique refractive challenges in keratoconus include the need for cornea sparing procedures, the frequent combination of astigmatism and high myopia, and the need for the ectasia to be stable, which is a major concern. The main prerequisite for toric IOL placement in keratoconus eyes is a stable, non–progressive ectasia. The surgeon should wait and observe corneas of young patients and remember to discuss realistic expectations.

Astigmatism surgery in normal and abnormal corneas with implantation of toric phakic IOLs was the topic covered by the session’s co-chair Jorge Alio, MD, PhD, Alicante, Spain, who observed that IOLs give the opportunity to correct both myopia/hyperopia and astigmatism in one surgery and were more useful than lasers in eyes with higher levels of astigmatism. He said that IOL calculation was basically refraction–based and relatively easy to do. Toric IOL placement in special cases include cases with a mixture of regular and irregular astigmatism and can be used in cases of stable keratoconus, stable pellucid margin–al degeneration, after corneal transplantation, and in eyes with corneal scars due to trauma or infectious keratitis. For toric IOLs to work, the following is necessary: stable astigmatism, best corrected visual acuity over 20/40, coma under 1.5 µm, and grade 1 keratoconus. It can be used in some cases of post–keratoplasty.

Mitchell Weikert, MD, Houston, Texas, U.S., discussed innovations in toric IOLs, saying that outcomes largely depended upon accurate corneal astigmatism measurement, accurate marking of the corneal meridians, and accurate alignment of the IOL. At least 20% of patients have astigmatism up to 2 D that needs correction, using one of the three current platforms: AcrySof (Alcon, Fort Worth, Texas, U.S.), Tecnis (Johnson & Johnson Vision, Santa Ana, California, U.S.), and Trulign (Bausch + Lomb). He said that the preoperative measurements were key and that different devices helped offer qualitative and quantitative advantages. He warned against devices that only measure the anterior cornea without including posterior corneal measurements and recommended the use of multiple sources for astigmatism measurement and at least two or three different devices to get the best overall picture. Dr. Weikert takes extra time with corneal marking to ensure utmost precision.

Finally, astigmatism correction and nomogram adjustment of small incision lenticule extraction (SMILE) for myopic eyes was addressed by the session’s co-chair Wang Yan, MD, PhD, Tianjin, China, who observed the procedure showed acceptable outcomes in eyes with myopic astigmatism. A controversy centering on subjective versus objective alignment exists due to the fact that SMILE is associated with a lack of eye tracking, uses surgeon–dependent centration, and has not been proven to benefit astigmatism correction. Increasing the nomogram for astigmatism is important, she said. Factors influencing outcomes are the original cylinder value, angle kappa, cyclotorsion adjustment, biomechanical properties, the direction of the incision, and overall the need for further investigation.

**Paul Lichter, MD, receives Bernardo Streiff Gold Medal**

by Liz Hillman EyeWorld Senior Staff Writer

Paul Lichter, MD, Ann Arbor, Michigan, U.S., was honored with the Bernardo Streiff Gold Medal by the Academia Ophthalmologica Internationalis (AOI) for his contributions in glaucoma.

The medal, which is awarded every four years, is named for the late Bernardo Streiff, MD, who focused the end of his career on history and ethics for advancement of ophthalmology. Gullapalli Rao, MD, Hyderabad, India, who introduced Dr. Lichter, said the medal is awarded to an ophthalmologist who contributes to the advancement of ophthalmology through history, ethics, and education.

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Dr. Lichter, Dr. Rao said, has contributed to all aspects of glaucoma care, education, and research and is “an example of somebody who is a follower of ethics to the core.”

Dr. Lichter focused his lecture on what he’s learned about cataract and glaucoma throughout his career, ending with the role of ethics in ophthalmology. When he was completing residency, a little over 50 years ago, cataract surgery was intracapsular with a lengthy hospital stay and patients wearing strong, aphakic spectacles afterward. Surgery at that time was delayed as long as it could be, with patient’s vision being as low as 20/50 before cataract extraction was considered an option.

Over the years, phacoemulsification was introduced (and later became the gold standard of care), IOLs evolved, smaller incisions were used, and more advanced phaco equipment was developed.

The introduction of multifocal IOLs, or premium lenses, presented the opportunity for profit in physician practices, Dr. Lichter said. Monovision also could provide patients with more independence from glasses while also eliminating some of the adverse visual effects associated with multifocal IOLs. The introduction of femtosecond laser-assisted cataract surgery has also been billed as premium service. What’s missing, Dr. Lichter said, is a lack of patient-centered outcomes, research comparing multifocal lenses vs. standard lenses vs. monovision. What’s more, he thinks we don’t really know what the patient wants out of their surgery, especially if they receive unbiased information about their options.

Following a similar train of thought with glaucoma, Dr. Lichter described how therapy has evolved since his residency with more recent advances including new drugs and surgical options that are largely driven by industry.

“During my residency 50 some years ago, there weren’t many ethical issues. We didn’t talk about industry-physician relationships because there weren’t any,” he said. “Then, when industry saw the potential for new drugs and devices, that relationship became more important, because industry need-
Session highlights updates in global eye banking

by Ellen Stodola EyeWorld Senior Staff Writer/Digital Editor

The Global Alliance of Eye Bank Associations (GAEBA) session on Saturday afternoon focused on updates in global eye banking. Presenters at the sessions covered topics like disease transmission in corneal transplantation, developing global medical standards, microbiology, OCT, the Cornea Preservation Time Study, and more.

During the session, Christopher Stoeger, MBA, Portland, Ore., U.S., discussed use of OCT with corneas stored at 4 degrees Celsius. This technology is most commonly used for Descemet’s stripping automated endothelial keratoplasty (DSAEK), he said. Ultrasonic pachymetry, while accurate, has limitations, he said, which include that it is employed at the time of tissue processing (which could cause surprise with thick corneas), head selection is done at the time of processing, there are limitations for some devices measuring below 100 µm, and the probe touches the tissue.

In addition, use with DSAEK, OCT can be used in other instances, Mr. Stoeger said, like evaluating opacities, screening for refractive surgery, seeing the Bowman’s membrane clearly (can tell if PRK has been performed), identifying guttae (as opposed to simple cell loss), and as a tool for Descemet’s membrane thickness evaluation (this may benefit the selection of grafts for DMEK).

With modern ultra-thin graft request from surgeons, selecting the right corneas is important, Mr. Stoeger said, so pre-screening the tissue to identify corneas likely to produce an ultra-thin graft is ideal. A double-pass technique uses both ultrasonic and OCT to identify thin points in the tissue.

Mr. Stoeger admitted that there are some downsides to OCT. It is expensive technology, and some eye banks may not have enough volume to support its use he said. He added that there are also ongoing maintenance costs, the resolution and scan widths are still evolving, it can add to the workflow, and it does take some training (but it’s relatively easy to use).

In conclusion, he said that OCT is an excellent tool for aiding tissue processing for DSAEK. OCT adds additional info to the tissue evaluation process that gives added confidence to tissue suitability determinations, he said.

Also during the session, Jonathan Lass, MD, Cleveland, Ohio, U.S., discussed the Cornea Preservation Time Study (CPTS), whose primary objective was to determine the effect of preservation time (PT) on graft success and endothelial cell loss 3 years postop in eyes undergoing DSAEK for cornea conditions associated with endothelial dysfunction and moderate risk for graft failure.

Dr. Lass noted that extending PT beyond 7–8 days may be advantageous because it could provide more time for tissue evaluation, improve efficiency of tissue distribution, and respond to future threats to the donor pool related to increasing demand. Results of the study ultimately found that longer PT was associated with a lower graft success rate, but the effect of PT on graft success up to 11 days was small. The success rate was still high in the 12–14 day PT group, he said, with an 89.3% success rate.

Based on these results, Dr. Lass suggested that the CPTS could impact supply and distribution of hypothermic stored donor corneal tissue in the future. The study results could help allow for more time for eye banks to evaluate tissue, which, in turn, could increase the supply with greater suitability, he said. Additionally, if more surgeons accept a longer PT, there could be a greater over-supply of donor tissue in the U.S. in the short-term, and in the long-term, this could help assure adequate supply in the U.S. The results could also support further growth of international distribution of tissue with demands to place tissue and strong evidence to support quality beyond 7 days of storage, he said. EW
A message from the ICO CEO

by Ellen Stodola EyeWorld Senior Staff Writer/Digital Editor

William Felch

William Felch serves as CEO of the ICO. He spoke to EyeWorld about the ICO, his role in the organization, and some of the features of the WOC2018 that he’s particularly excited about.

There are several things about the ICO and WOC meeting that I think are really unique, he said. One is that the ICO is composed of 170-member societies, and a lot of them are involved in content development for the meeting, he said. “All of our subspecialty societies are invited to develop a session.” This makes the World Ophthalmology Congress different from a lot of other meetings where they have a scientific program committee that does the whole thing, Mr. Felch said, so it really is a collaboration of many different societies.

The second unique aspect of the ICO, he said, is that the meetings move around the world, providing a “very high-quality educational experience,” with the goal of helping ophthalmologists learn the latest in the field. “We rotate among four regions of the world, so part of the philosophy is to take the meeting to the people rather than have them travel long distances to the meeting,” he said.

Mr. Felch has been working with the ICO since 1993 when he was a consultant, and he has worked on several strategic plans for the organization since then. He took on the official role as CEO in 2012.

Mr. Felch particularly highlighted the work of the scientific program committee in putting together a program that features speakers from all over the world. He mentioned several other aspects of the meeting, including wet labs (hands-on courses give attendees the chance to do practical training), breakfast club sessions (an opportunity for attendees to sit down and speak with some of the experts), and a 3-D live surgery.

In addition to a strong clinical program, Mr. Felch also mentioned some non-clinical aspects of the WOC2018: the World Ophthalmic Education Colloquium (WOEC), which is a series of courses and workshops for educators; the World Forum for Sight, which is several different sessions focusing on topics like public health, prevention of blindness, how to improve eye health around the world, and more; and the Robert Ritch Forum on Medicine of the Future, which will highlight topics that may be relevant 10–20 years in the future.

Mr. Felch also added that there will be social events to enjoy in Barcelona. “I always think that people learn as much at these meetings from their interactions with other people as they do in clinical sessions,” he said. He suggests that if you haven’t yet purchased your tickets to attend the Cultural Event at Poble Espanyol on Monday evening, stop by the registration desk. It will be an evening full of fun with plenty of food and drinks and entertainment throughout the night with a battle of the bands featuring Camara IV and Friends and Double Vision (band members are your fellow ophthalmologists). Poble Espanyol is a Spanish village and architectural museum at the foot of Montjuic just minutes from the Fira and downtown Barcelona. EW
Check out some of the many restaurants that Barcelona has to offer, from Spanish food to a variety of other cuisines.

7 Portes
Passeig d’Isabel II, 14
+34 933 19 30 33
Cuisine: Spanish/Catalan
This restaurant first opened as a café in 1836 under the name ‘Café de les 7 Portes.’ It became a popular destination, especially for journalists, intellectuals, politicians, and more. The restaurant has become particularly known for its rice and paellas but also offers a variety of Catalan cuisine.

Alkimia
Ronda de Sant Antoni, 41
+34 932 07 61 15
Cuisine: Catalan
Alkimia offers the option to enjoy one of the restaurant’s tasting menus or choose from their à la carte dishes and desserts. Food options include a variety of seafood, like calamari, prawns, wild fish, or lobster, and also other dishes, like veal, pigeon, and vegetable options. Dish selections depend on the market.

Ca L’Esteve’t
Carrer de Valldonzella, 46
+34 933 01 29 39
Cuisine: Catalan
The restaurant first opened in 1890 and was originally known as ‘Fonda Navarro.’ It became ‘Ca L’esteve’t’ in 1940. The menu includes a variety of starters, including many seafood dishes and Iberian ham, as well as vegetables. Other menu items include paella, fish, and meats.

Casa Agustí
Carrer de Bergara, 5
+34 933 01 97 45
Cuisine: Catalan
This restaurant was founded in 1936 by Agustí Ros. Its décor seeks to showcase Barcelona’s charm. Menu items include a wide variety of Catalan/Barcelona cuisine, including ham croquettes, cod fritters, salads, soups, paella, rice, veal, squid, and more.

Dos Cielos
Meliá Barcelona Sky, Carrer de Pere IV, 286
+34 933 67 20 70
Cuisine: Mediterranean
This Mediterranean restaurant boasts “stunning views of the Mediterranean Sea and the impressive skyline” from its location on the 24th floor of the Melia Barcelona Sky. It first opened in 2008 and offers a sampling menu of seasonal items.

Dos Palillos
Carrer d’Elisabets, 9
+34 933 04 05 13
Cuisine: Asian Fusion
Dos Palillos has been open for 10 years and offers a variety of Asian-Fusion menus. With several tasting menus, including a variety of meat, fish, sashimi, and more, diners can enjoy a wide variety of cuisine. You can also choose to try a à la carte menu from the restaurant’s bar area.

Enoteca Paco Perez
Hotel Arts Barcelona, Carrer de la Marina, 19-21
+34 934 83 81 08
Cuisine: Mediterranean
This Mediterranean restaurant highlights both local products and fresh seafood in its dishes. It also boasts over 700 wine labels. It’s located at the Hotel Arts Barcelona.

Freixa Tradicio
Carrer de Sant Elies, 22
+34 932 09 75 59
Cuisine: Catalan
This restaurant opened in 1986 and seats about 40 guests. It serves Catalan cuisine, specifically its own bread. Other menu items include meats, fish, salads, and more.

Gorra
Carrer de la Diputació, 421
+34 932 45 11 64
Cuisine: Basque-Navarre
This restaurant has been open since 1977 and boasts its excellence in quality, service, and tradition. Menu items include a variety of vegetable, fish, and salad starters, as well as main dishes of meats and fish. The restaurant also features an extensive dessert menu and a large wine selection.

IRATI Taverna Basca
Carrer del Cardenal Casañas, 17
+34 932 02 05 22
Cuisine: Basque
This restaurant is located in the Gothic Quarter and boasts authentic Basque cuisine, highlighting both food and friendship. The menu includes meat and fish options, as well as appetizers and salads. The restaurant also offers seasonal products and “txuleton” grilled dishes.

Kao Dim Sum
Carrer del Bisbe Sivilla, 48
+34 934 17 30 64
Cuisine: Chinese
This restaurant features Chinese dim-sum, including a variety of small plates and dumplings. The menu includes different types of dumplings: crumbling dumplings, boiled dumplings, and steam dumplings. It also has a variety of salads, cold dishes, hot dishes, and desserts.

L’Atelier BCN
Carrer de Pau Claris, 153
+34 934 61 68 32
Cuisine: French
This French restaurant first opened in Barcelona in 2015. It opens during the week beginning at 10:15 a.m. until late into the night, as well as on Saturday from 4:30 p.m. to 1:30 a.m. It is located in the Eixample area of Barcelona near Plaza Catalunya. The menu is seasonal and features many signature French dishes.

L’Havana
Carrer del Lledó, 1
+34 933 02 21 06
Cuisine: Catalan
The restaurant boasts a variety of dishes, including starters, entrees, and desserts. Enjoy some of their stews, which are noted as specialty dishes. They also have a number of seasonal dishes. Additionally L’Havana advertises a varied wine selection, including cava, and champagne.

Obe
Plaza Santa Caterina, 1
+34 932 68 23 65
Cuisine: Mediterranean/Italian
This restaurant advertises “fresh seasonal market products, high-quality cuisine, and large selection of Italian wines.” The menu includes a variety of tapas options, including pasta, risotto, salads, meats, fish, and more.

Senyor Parellada
Carrer d’l’Argenteria, 37
+34 933 10 50 94
Cuisine: Catalan
Located in the center of Barcelona in the Borne neighborhood, Senyor Parellada is near the Picasso Museum and other sites. It features a colonial-style restaurant, complete with a courtyard. The restaurant has an extensive menu, which includes appetizers, salads, meats, fish, and more, as well as many wine options.

Yashima
Av. de Josep Tarradellas, 145
+34 934 19 06 97
Cuisine: Japanese
This Japanese restaurant has been open in Barcelona since 1989. It features a large variety of Japanese dishes, including starters, tempura, noodles, rice, soup, meat, seafood, sushi, and sashimi. The restaurant also features several set menus.
Clinical tips and techniques from leading ophthalmologists from around the world

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