A meeting of minds

Distinguished speakers, a topical programme and the offer of last-minute CET points proved a winning formula for this year's BCLA Pioneers Conference and Lecture, as **Alison Ewbank** reports

Think of the pioneers of contact lenses and some famous names from the past spring to mind. The pioneering researchers and clinicians that the British Contact Lens Association salutes each year have one thing in common: they're no longer with us.

But the contribution of the current generation of scientists to our understanding of contact lenses is very much alive, none more so than recent work on the epidemiology of contact lens-related infection that has important clinical implications for every practitioner and patient.

Fiona Stapleton is a graduate of the University of Wales and now head of optometry and vision sciences on the other side of the world, at the University of New South Wales. She started her research career in London, at City University and Moorfields Eye Hospital, working with Geoff Woodward, Roger Buckley and John Dart, before moving to Australia 15 years ago to join Brien Holden's group.

Now Professor Stapleton, her contribution to contact lenses was marked last month at the Pioneers events, as she returned to London to deliver the 9th Pioneers Lecture before an audience of nearly 200 BCLA members.

Stark contrast

Stapleton's interest in contact lens-related infection was sparked by seeing the contrast between elderly patients at Moorfields with postoperative corneal infections or ocular surface disease, and those 40 years or more younger who were simply wearing contact lenses to correct low refractive errors.

So can we prevent contact lens-related microbial keratitis (MK) and what advice can we give to wearers?

For Stapleton, incidence data for MK were 'ridiculously robust' at about four in 10,000 wearers per year, or six per 100,000 per year for those with two or more lines of vision loss. Despite all the technological advances in contact lenses, it was disappointing that these figures had not shifted, she said.

Some modifiable risk factors, such as extended wear, were well recognised. Risk also increased with the number of days per week lenses were worn. One intriguing finding was that internet/mail order purchase was associated with a 4.5X higher risk than obtaining lenses from practitioners.

Professor Fiona Stapleton: Compliance isn't all about the patient

Not only was there a lower risk of severe disease with daily disposables compared with frequent replacement daily wear lenses, the causative organisms differed too. There were also brand-related differences between lens types.

Factors not associated with MK were contact lens age, time since last aftercare and material type, although one study suggested silicone hydrogel lenses might have a slightly shorter symptom duration than hydrogels.

Rubbing and rinsing lenses decreased microbial load with all solutions but there was no statistically significant difference in MK rate between those who incorporated a rub and rinse step and those who did not. Other factors were more important in identifying risk in MK. Neither did use of hydrogen peroxide disinfection carry a significantly lower risk than multipurpose solutions.

If the absolute risk of MK had not changed, were there ways of avoiding more severe cases of the disease?

With daily wear reusable lenses, attention to storage case hygiene and replacement could reduce the disease load by as much as 62 per cent. Hot climates, delay in seeking treatment and holidays were also associated with severe disease.

Recent work in Sydney by Nicole Carnt, now at Moorfields, looked at genetic associations with MK to identify those most susceptible to infection. There was a higher rate, both overall and of more severe disease, in individuals with certain genetic mutations. These differences were telling us more about the pathophysiology of the disease and were an exciting area for future research.

Two-way street

Compliance, said Stapleton in her second presentation, was a two-way street. It was not just about telling patients what to do but both practitioner and wearer had to own the process. Communication style influenced how much of that interaction was translated into practice.

With more than 40 steps involved in compliance, which steps were the most important? And which might result in a poorer outcome for the patient, whether through complications, discomfort, reduced wearing time or storage case contamination?

In terms of infection, hand washing and avoiding topping off solution were important steps but case hygiene and replacement were key. The problem was that lens care instructions, from manufacturers, regulatory bodies or other trusted sources, were inconsistent.

A survey of Australian practitioners showed that their instructions to patients on key compliance steps varied widely. On case replacement, for instance, only 10 per cent of practitioners recommended replacing the case with every bottle of solution, with the rest divided over replacement every month (29 per cent), every three months (26 per cent) or every 3-6 months (32 per cent).

With conflicting recommendations, it was hard to judge whether patients were compliant or not, said Stapleton. Her advice was to replace cases at least three-monthly, and that shorter replacement intervals were probably better, although more evidence was needed.

Laboratory and clinical studies had established how effective some recommended steps were in limiting case contamination. Rubbing the case, rinsing with solution, tissue wiping and air drying face down on a tissue was most effective. The more mechanical cleaning steps the better for biofilm removal and it was easier to remove organisms from smooth case wells than from ridged wells.

Silver-impregnated antimicrobial cases reduced the frequency of contamination and number of organisms. Storing these cases wet was more effective than dry storage. The performance of the case was also affected by the lens care product, some solution/case combinations showing more reduction in contamination than others.

'Compliance isn't all about the patient,' Stapleton concluded. 'Give clear, consistent instructions with an evidence base.' Despite our growing understanding of the role of compliance in avoiding infection, some of the key steps, and the impact of new technologies, were still not fully understood.

In the picture

Pioneers Conference often covers advances in clinical techniques and instrumentation, and this year was no exception. **Dr Michael Pritchard**, director-general of the Royal Photographic Society (RPS), provided a historical context. He described the development of camera and image-making from the daguerreotype camera in 1839 to today's digital cameras with their reliance on CCDs and electronics.

Along the way some famous names from the optical industry cropped up, from John Herschel, an early pioneer of contact lenses who came up with the terms 'photography' and 'snapshot', to brands such as Zeiss, Topcon and Polaroid.

Optometrist **Andrew Gasson**, an associate of the RPS, followed up with an exceptional library of photographs of the eye, and advice on getting the best quality images using various photographic and slit lamp techniques.

Professor James Wolffsohn (Aston University) reviewed anterior optical coherence tomography (OCT), highlighting differences in technology between instruments and advances that had improved speed, scan depth and resolution.

'Our leaders in the dock' (from left): ABDO president Jennifer Brower, BCLA president Dr Catharine Chisholm, Optical Confederation chairman Don Grocott, AOP chairman David Shannon and College of Optometrists' president Dr Kamlesh Chauhan, with Dr Shehzad Naroo and Professor James Wolffsohn who chaired the discussion

Dr Clare O'Donnell (Optegra Manchester Eye Hospital) looked at clinical and research applications of confocal microscopy. This technique was providing new insights into the microstructure of the cornea in health, contact lens wear, refractive surgery, and in ocular and systemic disease.

Ophthalmologist **Glenn Carp** (London Vision Clinic) listed 19 different metrics that could be used to weed out patients with conditions that made them unsuitable candidates for refractive surgery and concluded that surface topography alone was inadequate for this purpose.

In the dock

Completing the line-up for the day was a lively panel session as BCLA members put their questions on the future of contact lens practice in the UK to leaders of the representative bodies. Few contact lens conferences offer delegates the chance to challenge their leaders on the topical issues of the day and the audience relished this rare opportunity to put them on the spot.

Lack of action on lens substitution by internet suppliers, illegal sales of novelty lenses and illegal supply to children were subjects for some frank discussion on both sides (News, 30.11.12). The need for contact lens practitioners to provide high-quality care and charge accordingly was raised, again.

The new CET scheme starting in January was also in the firing line. There was concern that arrangements were yet to be finalised with less than six weeks to go before they took effect. Some questioned how effective the scheme would be in enhancing professional development and protecting the public. And there was the prospect of further changes to the scheme in three years' time. There were yet more concerns to come. New entrants to the profession had little knowledge of how to run a business, the number of independent prescriber optometrists was disappointingly low and government subsidies for practitioners in Scotland to buy practice equipment were inequitable.

Little wonder that an interactive poll on the question 'Is the future of contact lens practice in the UK safe in our leaders' hands?' recorded a larger majority of 'no' votes at the end of the discussion than at the start.

● Listen to 'Our leaders in the dock' and the BCLA Pioneers Lecture at www.bcla.org.uk