



Opportunities for young contact lens wearers

Kids and contacts. It's a popular subject on the programme of many contact lens meetings yet many practitioners are still hesitant about routinely fitting children with contact lenses.

To overcome some of the perceived barriers to recommending contact lenses to young patients and their parents, the British Contact Lens Association's Clinical Conference brought together experts in paediatric contact lens fitting from the UK and overseas. The result was a wealth of useful insights and advice to help practitioners get started.

Opening the session, chairman **Jeff Walline** (The Ohio State University) said the first question he often asked was, 'What age do people generally start fitting children with contact lenses?' Typically the answers he hears are 10-12 years in the US and Australia, 13-15 years in the UK, and 18 or older in Asia.

Daily disposable lenses had brought down the age at which contact lenses were fitted, he said. Compliance was less of an issue with these lenses, materials that allowed more oxygen to the cornea were now available and parents were starting to request contact lenses for their children.

More information about fitting lenses at an early age was emerging from recent research, which each of the five speakers referred to in the course of their presentations.

Both sides of the equation

Communication was key with young wearers and parents had to be on board as well, said optometrist and staff development consultant **Sarah Morgan**. Sometimes the child was keener on contact lenses than the parent and sometimes the parent was the driving force. But often neither child nor parent had thought about contact lenses.

Prescribing data showed that most practitioners were comfortable fitting lenses to teenagers but fewer fitted younger children and most would agree that infants were more likely to be dealt with in specialist centres.

A special session at BCLA 2012 looked at considerations when fitting children and teens with contact lenses. **Anna Sulley** reports



Bruce Evans: Young people have a greater need than adults for contact lenses

Adults often wanted to be free from spectacles for cosmetic and social reasons. But as a mother of two, Morgan was aware that even young children could be obsessive about their appearance and perhaps this was an even more delicate stage in self-perception and self-worth than adulthood. A UK study of children aged 7-8 years also found that spectacle wearers were 35 per cent more at risk of being bullied than those without spectacles.

After cosmesis, convenience was the next motivating factor and this particularly applied to activities and sport. Research had shown distinct quality of life benefits of contact lenses over spectacles in this regard, she said.

Gains and losses

When discussing contact lenses with parents, practitioners often talked about the benefits in the same terms as they would when fitting adults – the practicalities, cosmetic element, social acceptance and 'feeling normal'. What might be counter-intuitive was

to talk about the consequences of not allowing the child to try contact lenses, said Morgan.

This was especially important when the parents themselves did not need vision correction and believed their child could manage without any correction for sport. Showing emmetropic parents the effect of -2D of uncorrected myopia could be quite shocking for them. 'Put up a pair of +2.00s in a trial frame, take them outside and tell them this is how your child sees when they're not wearing their glasses,' she advised.

Achieving a consensus with the child was more straightforward. Children were 'incredible learners' and would readily accept advice. Those who regularly lost or broke their spectacles were, perhaps surprisingly, good candidates for contact lenses and well motivated.

Orthoptic indications

Bruce Evans (Institute of Optometry, London) described cases where contact lenses were not just the



preferred method of vision correction but recommended for clinical reasons. The advantages in correcting high ametropia or anisometropia had long been recognised, although it used to be thought that these only applied to refractive anisometropia and not axial anisometropia (Knapp's law).

Winn and co-workers disproved this theory, showing that contact lenses minimise aniseikonia in all forms of anisometropia and in young patients provided a more potent stimulus to binocular fusion than spectacles. Contact lenses might also be more effective than spectacles in treating anisometropic amblyopia and sometimes may avoid the need for patching. In fact orthotropic anisometropic amblyopes of any age were likely to do better with contact lenses.

Other orthoptic conditions that can be managed with contact lenses include decompensated exophoria, in which 'over-minusing' with contact lenses could help, and accommodative excess esotropia, where alternating RGP multifocals or monovision had been shown to be possible interventions. Those with infantile onset nystagmus could also benefit.

Evans reviewed some of the key research into fitting contact lenses for children showing that those aged 8-12 years did as well as those aged 13-17 years, requiring similar chair time although slightly more tuition. Physical appearance, athletic competence and social acceptance were all significantly better with contact lenses than spectacles in this younger age group, and a high proportion continued with contact lens wear (91 per cent at three years).

In terms of choice of lens type the child eye was very like the adult eye,



Sarah Morgan: Even young children can be obsessive about their appearance

with iris diameter and K readings at adult levels by about the age of seven. The oxygen requirement also seemed to be similar. Prescribing data showed that children were more likely to be fitted with daily disposable lenses than were adults.

Silicone hydrogel two-weekly or monthly replacement lenses were a good lower cost option, said Evans although his preference was for SiH daily disposables. UV blocking was also recommended, especially since children were to be encouraged to spend time out of doors.

Communication tips

Among top tips for fitting and tuition was to address the fear of the unknown by letting the child handle the lenses and explaining that soft lenses were very comfortable and 'mostly made of water' using the 'drop of rain on the eye' analogy. Stress that contact lenses should never hurt. Avoid discomfort by avoiding placing the lens directly on the cornea and, with RGP lenses, using anaesthetic at the first application.

Aim tuition and literature at child and parent and adopt a positive, encouraging and empathetic yet realistic attitude. 'If your personality is at all impatient or stern, then delegate,' said Evans, although a stern approach at aftercare visits could prove useful.

Quiz children regularly to make sure they know the basics of contact lens wear and care, and ask them to demonstrate lens handling at aftercare. Engage parents in the training and monitoring process so that they become the 'enforcers' in the home. For Evans, children had the potential

for better contact lens compliance than adults.

Older teenagers and those in their early 20s were more of a concern from the compliance point of view; fitting them younger when they were more malleable offered the opportunity to teach them good practice before they reached this age group.

Young people had a greater need than adults for contact lenses, he argued, and children could be as successful and benefit just as much as teenagers.

Mention contact lenses as an option when the child first needs refractive correction and remind them of this at each visit. If the child is an anisometrope, advise them that contact lenses are optically the best way of correcting their vision problem. Explain to the parents and the child that contact lenses are suitable when the child wants them and is ready from the hygiene point of view.

Parents and children needed to know that contact lenses were comfortable and child-friendly and that a high success rate was expected at this age, said Evans.

Compliance in children

According to **Carol Lakkis** (Johnson & Johnson Vision Care, Jacksonville), concerns about safety and compliance were among the reasons why practitioners were hesitant to fit young wearers, along with the misconception that children were more difficult or time-consuming to fit. Children were not lacking in motivation or maturity, and contact lenses were not expensive compared to the cost of other activities children were involved with.

Addressing safety concerns, Lakkis reviewed a 2010 study by Wang and co-workers which found that contact lenses accounted for the most medical device-associated adverse event cases (23 per cent) among paediatric patients attending emergency departments across US hospitals over a two-year period. However, most of these were superficial, either corneal abrasions or conjunctivitis, and did not require hospitalisation, and such adverse events were combined that are very common in the paediatric population as a whole. There was no comparison to non-contact lens wearers and no contact lens prevalence data were given to take into account the large population exposed to contact lenses.

A majority of the contact



Carol Lakkis: Daily disposables are the best option



lens-related complications in this study were in the 16+ age group and the under-10s showed hardly any complications. This finding was reflected in the Contact Lens Assessment in Youth (CLAY) study into the risk of corneal inflammatory events in contact lens wearers aged 8-33 years. Although age was a risk factor, the lowest risk was in those 8-15 years and the highest in 15-25 year-olds. The Contact Lenses in Paediatrics (CLIP) study also found no significant differences in adverse events between children and teens.

The recent Contact Lenses Are Safe in Children (CLASIC) study interviewed subjects who had worn soft lenses for at least 10 years, and found that those who had been fitted aged 12 or under were no more likely to have experienced adverse events than those fitted as teenagers and their experience of symptoms was similar. Other researchers had shown that children and teens tended to have fewer symptoms in contact lens wear than adult wearers, and the frequency of dryness was significantly lower in children than in teens.

Patient/practitioner partnership

Lakkis then turned to compliance, or 'adherence', which indicated active patient involvement and a partnership between patient and practitioner. Soni and co-workers had found high levels of compliance in children aged 11-13 years (85-99 per cent) and better compliance than in adults. The CLASIC study showed no significant difference in compliance between child-fit and teen-fit wearers.

Improving compliance involved educating both child and parent and explaining the practical benefits of complying with instructions, such as better comfort and increased wearing time. Demonstrate wear and care steps, supplementing with written and verbal instructions, videos and quizzes, she advised.

Probe care and maintenance procedures at each aftercare visit and reinforce key safety areas such as hand-washing, rubbing and rinsing, solution re-use and topping up, case care and water exposure.

Her advice for minimising adverse events was that daily disposables were the best option, with fewer complications, better vision and satisfaction and better compliance with lens replacement. SiHs offered additional benefits for higher prescriptions and children with

handling issues. Antimicrobial cases (and, in future, lenses) and lens/case replacement reminders such as Acuminder or Lens Alert were also recommended.

Myopia control approaches

As lead author of the recent Cochrane Review of myopia control interventions and some of the clinical studies into these approaches, Jeff Walline provided an overview of current research in this area. If estimates of the prevalence of myopia varied widely, there was a consensus that it was increasing, he said.

Age, gender, region and definition of myopia influenced prevalence estimates. Quoted rates were higher in Asia (up to 80 per cent) than in Europe (12-49 per cent), North America (33 per cent) or Australia (10-32 per cent).

There was much speculation about possible risk factors but those most commonly associated were parental myopia (children with two myopic parents are at greater risk than children with one or no myopic parents) and refraction at age eight (+0.50D or less hyperopic at approximately age eight years means greater risk).

Outdoor activity was associated with a decreased risk of myopia onset although the reason was unclear. Theories included a protective effect of vitamin D from dietary sources and sun exposure, the amount of light when outdoors, and seeing in the distance more when outside. 'There are lots of other benefits to children being outdoors so they should be doing it anyway,' argued Walline.



Jeff Walline: Myopia control is best provided by CLs

Looking at the various methods of slowing myopic progression, one of the most commonly used was bifocal or multifocal spectacles. This approach did work but the effect was not clinically meaningful, only about a 0.25D effect over three years and this included myopic esophores with accommodative lag and low myopia who were the most likely to benefit.

Under-correcting myopic children was another approach but this either had no effect or increased myopic progression so this was another method that we could eliminate from discussions about myopia control.

Of the pharmaceutical approaches, atropine did slow myopic progression effectively (by 75-100 per cent) but had the adverse side-effects of mydriasis and cycloplegia. The treatment effect did not continue to accrue after the first year and after discontinuing atropine the eye seemed to progress faster. Pirenzepine had about a 40 per cent treatment effect but was unlikely ever to be commercially available, he added.

Contact lenses 'best bet'

Alignment fit gas-permeable lenses have long been thought to slow myopic progression but two more recent studies have found no difference in axial elongation of the eyes. However, corneal reshaping lenses on average slowed progression by about 50 per cent and the effect seemed to accrue beyond the first year. But Walline urged caution until randomised clinical trials had been conducted.

Soft bifocals had a similar treatment effect, of nearly 50 per cent slowing of myopic progression over two years, when compared with single-vision soft lenses. A contralateral eye study by Anstice and Philips showed that the effect was not due to a reduction in accommodative lag with the soft bifocal but to the optics of the lens. Most recently a study by Sankaridurg and co-workers found a reduced rate of progression with a soft bifocal design compared with spectacles. Similar designs of spectacles investigated by the same group showed limited success.

Walline concluded that myopia control was best provided by contact lenses. Again, long-term randomised clinical trials were needed to provide resolute evidence, but according to the results of several preliminary studies, soft bifocal contact lenses with a distance centre design and corneal reshaping contact lenses both slow



Simon Donne: Fit children and they immediately become fully paid-up members of your patient base

myopia progression by approximately 40 to 50 per cent.

Treatment accrued over time and it seemed that the effects were greater with greater peripheral myopia. Myopes up to -1.75D and over -5.00D were best fitted with soft bifocals, and from -2.00D to -5.00D with either corneal reshaping or soft bifocals.

Business benefits

Optometrist **Simon Donne** observed that children were often seen as a loss leader in business terms with an abundance of 'kids go free' offers on

spectacles. 'Fit children with contact lenses', he said, 'and they immediately become a fully paid-up member of your patient base.'

The 2006 London Business School study had shown that patients who wear spectacles and contact lenses are up to 80 per cent more profitable than those who wear spectacles alone. At least 60 per cent of contact lens patients also buy spectacles from their eye care professional, and those who have both forms of optical correction are also more loyal.

Children were highly motivated

to wear contact lenses. They were very image and status conscious and contact lenses provided particular benefits at various stages of their lives, such as when changing schools, taking exams, learning to drive and starting relationships.

Sport was the number one driver for contact lens use in children up to 18, said Donne. A 2010 survey showed that 75 per cent of those aged 10-12 and 79 per cent in the 13-17 age group cited 'current vision correction interfering with sports' as a reason for their interest in contact lenses. Sport was also the principal reason why practitioners recommended contact lenses to teens.

Other research found that 75 per cent of parents agreed that contact lens wear would have a positive impact on their child's performance in their school or career and for sport.

Young patients were especially vulnerable to UV exposure because they had larger pupils, clearer lenses, spent more time outdoors and rarely wore sunglasses or hats. It was therefore important to recommend UV-blocking contact lenses as early as possible, said Donne.

He went on to share his tips for improving profitability among a young patient base. Make your practice child-friendly by having age-appropriate materials and activities in the reception and waiting area. Train yourself in communication style and lens options, including myopia control, and train your staff to be proactive and talk about contact lenses to patients of all ages.

Talk to local schools and think about promoting contact lenses through your website, posters, in-practice leaflets and displays. Use a fee-based system as you would with adults and relate the cost of lenses to lifestyle purchases, such as comparing the cost of daily disposables with that of, for example, sports kit.

Young wearers could have lifetime value for your practice, said Donne. Offer them the same excellent levels of service that you do their parents and they will return to see you for the whole of their contact lens wearing life.

Tell everyone about contact lenses. You may not yet be a specialist in fitting kids with contact lenses but you can be a specialist in making sure patients of all ages know about them. ●

● **Anna Sulley** is associate director medical affairs EMA at Johnson & Johnson Vision Care, which supported this BCLA conference session

TOP TIPS WITH YOUNG CONTACT LENS WEARERS

- Appearance, social acceptance and sport are strong motivating factors for children to wear contact lenses
- Talk to parents about the consequences of their child not trying contact lenses, as well as the benefits of contact lens wear
- In some children contact lenses are indicated rather than just an option
- Daily disposable lenses are generally the preferred lens type
- Use quizzes to ensure that children know the basics of lens wear and care
- Contact lenses are not expensive compared to the cost of children's activities
- Consider a fee-based system for your young contact lens patients
- Young children are at low risk of contact lens-related complications and show high levels of compliance with instructions
- Time spent out of doors has a protective effect against myopia development. UV-blocking contact lenses should be recommended for children
- Contact lens approaches to slowing myopic progression show most promise, with soft bifocals the best approach for low myopes at present
- Prepare your practice to accommodate children - make your premises and procedures child-friendly
- Fitting contact lenses to children has lifetime value and can benefit your business - actively recommend and promote them to your young patients