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PRIMARY eyecare

CONTACT LENSES AND THEIR PROBLEMS

It is remarkable how many people now wear contact lenses. With the development of so many different modalities of wear over the last decade, the number of contact lens wearers has expanded significantly.

The biggest influence on contact lenses in recent years is the disposable contact lens. Disposable contact lenses are convenient, cleaner, safer and expendable. It is now quite uncommon to see old, dirty contact lenses and their associated complications as wearers self-diagnose. If a contact lens is uncomfy, they can throw it out and put in a new one. Nine times out of ten the problem is solved.

So-what sort of contact lens problems commonly present nowadays?

Contact Lens-Related Dry Eye

Probably the most common problem is the contact lens -related dry eye. The symptoms are similar to ordinary dry eye but with a few variations. The eyes will feel dry, irritable and scratchy with associated redness and reflex tearing (epiphora). The vision may become variable as the contact lens front surface dries. The lens may move excessively on blinking as it catches on the eyelid. Sometimes eye discomfort is reported on removal of the contact lens. As the contact lens dries on the eye it can bind to the corneal surface. On removal some of the corneal epithelium comes away with the contact lens. This usually heals very quickly but recurrent epithelial erosion can become a chronic condition. Another risk associated with contact lens-related dry eye is sterile marginal ulcer. This presents as a painful, red eye usually with a foreign body sensation. Ulcers stain well with Sodium Fluorescein. But you need a cobalt blue light source to see it.

What causes contact lens-related dry eye? As contact lenses are a foreign body on the eye, they disrupt the integrity of the tear film. More tears are required to maintain an optimal surface over the contact lens. A contact lens on the eye also increases the rate of evaporation of tears by disrupting the lipid layer. This whole situation is exacerbated by a contact lens that is dirty or damaged. If a wearer is tired or run down, then their tear production may be reduced. Low-grade allergies to dust, pollens or even preservatives in contact lens-care solutions will also contribute to the problem. With soft contact lenses, there is a correlation between water content of the contact lens and tear break up time.

Prevention is easier than cure. Contact lenses must be kept as clean as possible; frequent replacement of contact lenses is desirable. Correct blinking technique, if practised, can become habitual and so ensure that the eye and contact lenses are being adequately covered on each blink. Tear supplements are also used to good effect. Ensure that the supplement used is compatible with contact lens wear. Keeping the wearing time down can also help, so a back-up pair of spectacles is also essential.

Contact Lens-Related Trauma

This would be one of the most common causes of unilateral red eye. The trauma can be caused by poor insertion or removal of a contact lens, or by a damaged contact lens on the eye. This problem is usually easily diagnosed and managed. It is very rare that serious injury occurs due to a contact lens or handling.

Extended Wear

Disposable lenses provide the most convenient and safest means of wearing contact lenses on a daily wear basis. However problems still arise as up to 15 per cent of patients sleep in lenses, which are designed only to meet the daily wear requirements for oxygen.

In the open eye, the oxygen available is dependent primarily on the oxygen transmissibility of the contact lens material (Dk/t) and lens thickness. In the closed eye, with oxygen levels reduced to that available from under the lid, the barrier to oxygen presented by the contact lens is even greater. It has been established that contact lenses must have oxygen permeability (Dk/t) of at least 87 to avoid overnight corneal swelling, which can lead to adverse effects on the cornea and susceptibility to ocular infection. Current daily-wear contact lenses do not meet even half of this requirement.

New silicone hydrogels have a Dk/t well in excess of this criterion. Several studies have been conducted to determine the overnight oedema level with these new-generation materials. These studies have confirmed that induced overnight oedema levels are significantly reduced relative to those observed with conventional products and are indeed similar to no-lens wear.

Patients in New Zealand can now be prescribed lenses made with new silicone hydrogel materials. These lenses are capable of supporting up to 30 days and nights of continuous wear and for some patients reduce the risk of eye contamination.

"Optometrists will assist your diagnosis by providing a comprehensive eye examination for your patient."

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C.L.A.R.E (Contact Lens-Induced Acute Red Eye)

The development of the disposable contact lens market has led to a significant decline in these problems. The frequent replacement of contact lenses means that the risk of infections is reduced. However it still does occur.

Microbial Keratitis (MK) is the only serious adverse reaction seen during contact lens wear as it is potentially blinding. Hypoxia is one of the most important risk factors for developing MK.

Red eyes, photophobia, discharge and general diffuse punctate corneal staining with fluroscein are all indications of an infected eye. The causes primarily are poor compliance with lens care regimes, poor hygiene when handling contact lenses and secondary infection due to upper respiratory tract infections. There does generally seem to be an increase in incidence at autumn/early winter. Warmer humid environments or "sick" air conditioning may be at fault.

Other significant adverse events include: contact lens-induced peripheral ulcer (CLPU), infiltrative keratitis (IK), Contact lens induced papillary conjunctivitis (CLPC), superior epithelial arcuate lesions (SEALS) and corneal erosions. These events can be managed very successfully without significant after effects. Contact lens wear can safely be resumed after the event has resolved.

Non-significant adverse events include asymptomatic infiltrative keratitis (AIK) and asymptomatic infiltrates (AI). Both of these events occur in contact lens and non-contact lens wear and thus warrant observation only.

Proper patient hygiene and careful instructions on lens handling are critical to avoid contamination and adverse events. The two most important "rules" are

- If the lens is removed from the eye for any time it should be properly cleaned and disinfected.
- If the eye becomes red or sore the lens should be removed and advice sought immediately.

If your patient presents with an eye condition that you want investigated further you can always refer to your local optometrist. The optometrist has a range of equipment that allows a detailed assessment of the anterior segment. Optometrists will assist your diagnosis by providing a comprehensive eye examination for your patient.

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