Conjunctivitis and chloramphenicol

At last there will be an effective over-the-counter treatment for acute bacterial eye infections. Chloramphenicol eye drops were licensed for OTC sale this week and OTC packs are to become available in the next few months. In this article, Marvyn Elton looks at what pharmacists can now do for people with conjunctivitis.

Figure 1: Structure of the conjunctiva

The conjunctiva is a highly vascularised mucous membrane. It covers the white of the eye (the sclera) and the inner surfaces of the eyelids (see Figure 1). The conjunctiva protects the sclera and decreases friction when we blink.

Conjunctivitis

Conjunctivitis means inflammation of the conjunctiva. There are four main types of conjunctivitis: bacterial, adenoviral, allergic and chlamydial. It is also possible for a foreign body on the conjunctiva to cause conjunctivitis. Conjunctivitis may be accompanied by soreness or discomfort, but the presence of pain is a sign that something else is wrong.

Bacterial conjunctivitis

Bacterial conjunctivitis is more common in infants and children than in adults. In adults, 55 per cent of bacterial conjunctivitis is caused by Staphylococcus aureus, 20 per cent by Streptococcus pneumoniae, 10 per cent by Moraxella spp, 5 per cent by Haemophilus influenzae and 5 per cent by Pseudomonas aeruginosa. Staphylococcus and streptococcus are Gram positive bacteria, haemophilus and pseudomonas are Gram negative bacteria and moraxella is Gram variable. In infants and children, the most common bacteria causing conjunctivitis are Streptococcus pneumoniae, Moraxella catarrhalis and Haemophilus influenzae.

Adenoviral conjunctivitis

Adenoviral conjunctivitis is more common in adults than in children. Adenoviruses are also implicated in causing the common cold (rhinoviruses are the main cause). Ten of the 31 serotypes of adenovirus have been implicated in causing conjunctivitis, with types 8 and 19 being the most frequent cause.
Adenoviral conjunctivitis usually presents as a red eye with watery discharge and a gritty feeling. The eyelid may also be swollen. Photophobia is possible and in such cases, the patient should be referred to a GP. Symptoms of a cold can be present. To distinguish a bacterial conjunctivitis from an adenoviral conjunctivitis, the patient can be asked: Was there a yellow discharge or a watery discharge? If there is a watery discharge, the patient can be asked if he has a cold or has had a cold recently.

Adenoviral conjunctivitis will usually resolve spontaneously within two weeks and no treatment is necessary. Chloramphenicol does, however, have some anti-adenoviral activity. Over-the-counter chloramphenicol eye drops are indicated for treating acute bacterial conjunctivitis, but it is acceptable to recommend OTC chloramphenicol for adenoviral conjunctivitis.

Again, the patient should be advised to take care not to transfer the infection to an unaffected eye. In addition, care should be taken not to transfer the infection to other people (e.g. hand towels should not be shared).

Allergic conjunctivitis Allergic conjunctivitis is common in spring and summer. If it occurs in the hay fever season, it is called sea-
Chlamydial conjunctivitis is caused by Chlamydia trachomatis, a bacterium. Unlike other bacteria, it has a unique cell wall. Chlamydial infections are more common in younger adults than older adults. Chlamydial conjunctivitis is less common than other causes of conjunctivitis. Presentation is typically between five and 14 days after birth.

In chlamydial conjunctivitis, the eye will be red and, often, the redness is a darker shade compared with bacterial, adenoviral, or allergic conjunctivitis. Discharge can vary from watery to mucopurulent in adults and neonates. The eyelid can be swollen and chemosis may be present. Treatment of chlamydial conjunctivitis in neonates is with erythromycin suspension four times a day for two weeks. Treatment in adults is with erythromycin, doxycycline, or tetracycline for about six weeks.

If there is a misdiagnosis and chloramphenicol eye drops are used, the eye will not improve. A chlamydial cause must be ruled out because an untreated chlamydial conjunctivitis can cause conjunctival and corneal scarring, which can affect vision.

Chloramphenicol eye drops
In England, in 2003, one and a half million chloramphenicol eye drops were dispensed (including single use packs, e.g., Minims). Although the eye drops can now be sold over the counter, chloramphenicol ointment remains a prescription-only medicine. The ointment stays in contact with the eye for longer than drops but can blur vision.

Panel 1 gives more information about the drops, including the OTC dose, storage and safety. Rare safety issues include aplastic anaemia and grey baby syndrome.

Aplastic anaemia There have been concerns about topical chloramphenicol and bone marrow depression (aplastic anaemia). These concerns first emerged with the publication of a paper by Rosenthal and Blackman in 1965. In 1965, 208 babies were treated with chloramphenicol eye drops, according to a letter published in the British Medical Journal. Two of these babies died and the letter noted that: “Aplastic anaemia is a rare condition, with a fairly high mortality rate, and the appearance of two deaths in the same hospital is worth considering.” The deaths were reported to NMSA, but no further investigation was conducted. There have been concerns about the safety of chloramphenicol eye drops, especially in newborns and infants. The risk of aplastic anaemia is thought to be lower than previously thought, and the use of chloramphenicol eye drops is still recommended for severe bacterial conjunctivitis in newborns and infants.
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In fact, this pa-


References

Problems instilling eye drops include difficulty aiming the bottle, shaky hands and reflex blinking

Working with other health care professionals

Three terms are often used when talking about health care professionals who deal with eye health: ophthalmologist, optometrist and dispensing optician.

Ophthalmologists

Orthoptists usually work in hospitals with ophthalmologists. They are concerned with diagnosing and treating abnormal ocular motility (eg, arising from injury) and problems relating to vision such as strabismus (squint).

Optometrists

Orthoptists (also known as an ophthalmic opticians) are qualified to test and examine eyes. They can play a role in diagnosing various conditions, such as glaucoma and diabetes. Generally, optometrists will have read a degree in optometry or equivalent (known as PQE part 1), completed a preregistration year and passed a professional qualifying examination (PQE part 2). Some ophthalmic opticians are members (MCOptom) or fellows (FCOptom) of the College of Optometrists. Registered ophthalmic opticians are exempt from the general rules of the Medicines Act 1968, in that they may sell or supply some medicines provided it is in the course of their professional practice and it is an emergency (although emergency is not defined). These medicines include 0.5 per cent chloramphenicol eye drops and 1 per cent chloramphenicol ointment. A full list is available in “Medicines, ethics and practice”. Pharmacists may supply these medicines to registered ophthalmic opticians or patients under their care on presentation of a signed order.

Dispensing optician

Dispensing optician fits spectacles and sometimes contact lenses, but does not perform eye tests. There are several routes to becoming a dispensing optician, including taking a two-year full-time course. Dispensing opticians may be designated fellow of the British Dispensing Opticians (FBDO) or the British Optical Association (FBOA).

Dispensing opticians and ophthalmic opticians practising in the UK are regulated by the General Optical Council. All opticians must be registered with the General Optical Council before they may practise in the UK. The register can be accessed at www.optical.org. Optometrists are identified by a registration number that starts with “O1”, and dispensing opticians a number that starts with “D-”. Unlike pharmacists registered with the Royal Pharmaceutical Society, registered opticians do not use a post nominal to indicate that they are registered with the General Optical Council.