THE COLLEGE OF OPTOMETRISTS

Optometrists Formulary

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Optometrists' Formulary Background Notes

Introduction

The following notes on the legislative framework governing the use of Medicines Act exemptions are taken from:
http://www.mhra.gov.uk/Howweregulate/Medicines/Availabilityprescribingsellingandsupplyingofmedicines/ExemptionsfromMedicinesActrestrictions/Optometrists/CON009694
Details of the individual drugs, their use, availability and contra-indications can be found in the Optometrists Formulary section of eMedINFO, which is provided free to all College members.
For guidance on professional conduct optometrists are referred to the College's Code of Ethics and Guidance for Professional Conduct, particularly Chapter 40. Prescribing optometrists are also referred to the College Guidance for Optometrist Prescribers, which gives more detail as to prescribing optometrists' responsibilities. Both documents are available in the public section of www.college-optometrists.org

Medicines legislation in optometric practice (from 30 June 2005)

Under the Medicines Act 1968 medicines classified as Pharmacy (P) medicines may be sold or supplied only through registered pharmacies by or under the supervision of a pharmacist (section 52). Prescription only (POM) medicines are subject to an additional requirement: they may only be sold or supplied through pharmacies against a doctor's or dentist's prescription (section 58). General Sale List (GSL) medicines may be sold more widely through other retail outlets (sections 51 and 53).
Exemptions from the general rules are permitted for optometrists. These are provided for in the Prescription Only Medicine (Human Use Order) 1997 SI No 1830 (The "POM Order"), the Medicines (Pharmacy and General Sale- Exemption) Order 1980 SI No 1924, the Medicines (Sale or Supply) (Miscellaneous Provisions) Regulations 1980 SI No 1923.

Registered optometrists

Provided it is in the course of their professional practice, registered optometrists may sell or supply the following medicinal products to a patient:

All medicinal products on a General Sale List (Note: Under medicines legislation products which are for use as eye drops or eye ointments are excluded from the GSL category.); and

All P medicines .

Provided it is in the course of their professional practice and in an emergency, registered optometrists may sell or supply:
POMs which are not for parenteral administration and which:
a. are eye drops and contain not more than 0.5 per cent chloramphenicol or
b. are eye ointments and contain not more than 1 per cent chloramphenicol
c. contain the following substances:

Cyclopentolate hydrochloride

Fusidic Acid

Tropicamide

The POMs to which this exemption applies may also be sold or supplied by a person lawfully conducting a retail pharmacy business on the presentation of an order signed by a registered ophthalmic optician.

Additional supply optometrists

In addition to being able to access the medicines listed above, those optometrists who have undergone additional training and are accredited by the General Optical Council ("additional supply optometrists") are able to sell, supply or write an order for an extended range of medicines.

Provided it is in the course of their professional practice and in an emergency, additional supply optometrists can sell or supply prescription only medicines containing the following substances:

- Acetylcysteine
- Atropine sulphate
- Azelastine hydrochloride
- Dicofenac sodium
- Emedastine
- Homatropine hydrobromide
- Ketotifen
- Levocabastine
- Lodoxamide
- Nedocromil sodium
- Olopatadine
- Pilocarpine hydrochloride
- Pilocarpine nitrate
- Polymyxin B/bacitracin
- Polymyxin B/trimethoprim
- Sodium cromoglycate

The POMs to which this exemption applies may also be sold or supplied by a person lawfully conducting a retail pharmacy business on the presentation of an order signed by a registered ophthalmic optician. An order made under the Opticians Act 1989 provides that where it appears to a registered optometrist that a person consulting him/her is suffering from an injury or disease of the eye, the optometrist shall refer that person to a registered medical practitioner, except in specified circumstances including an emergency or where otherwise it is impractical or inexpedient to do so or there is no justification for such a referral. There is no legal definition of what is "an emergency" for the purposes of the Medicines Act exemptions or the specific criteria governing referral under the Opticians Act. It is therefore for the optometrist to make a professional judgement as to whether there is in fact an emergency and what measures need to be taken in the best interests of the patient, bearing in mind the Opticians Act, the GOC rules and Medicines legislation.

All POMs and P medicines to which Medicines Act exemptions apply may be sold to a registered optometrist by way of wholesale dealing.

Also, under the Medicines (Sale or Supply) (Miscellaneous Provisions) Regulations 1980, a registered optometrist may obtain the following medicinal products by way of wholesale dealing:

P medicines for administration in the course of his business.

POM medicines for administration (as opposed to sale or supply) containing the following substances:

- Amethocaine hydrochloride
- Lignocaine hydrochloride
- Oxybuprocaine hydrochloride
- Proxymetacaine hydrochloride

An additional supply optometrist will also be able to obtain thymoxamine hydrochloride via wholesale dealing should a commercial preparation become available.

Contents of a written order to the pharmacist to supply a medicine to the patient

An order for POMs should include: optometrist's name and address, the date, name and address of the patient (if applicable), the purpose for which the POM is to be supplied (eg use in professional practice, refraction, etc), name, quantity, and except where apparent from the name, the pharmaceutical form and strength of the POM, labelling directions (where applicable), the signature of the optometrist (which must be original). The signed order must be written in indelible ink (includes typewritten and computer generated orders).

Pharmacy medicines

For the purposes of the paragraphs above, eye drops and eye ointments containing the following substances are classed as P medicines:

Antazoline (up to 1%)

Azelastine hydrochloride (up to 0.1% for the treatment of the signs and symptoms of allergic conjunctivitis

Dibromopropamidine isethionate

Fluorescein sodium

Levocabastine (up to 0.05% for the symptomatic treatment of seasonal allergic conjunctivitis

Lodoxamide (up to 0.1% for ocular signs and symptoms of allergic conjunctivitis

Phenylephrine hydrochloride

Propamidine isethionate

Rose Bengal

Sodium cromoglicate (Only for the treatment of acute seasonal allergic conjunctivitis or perennial allergic conjunctivitis and subject to a maximum strength of 2% for eye drops or 4% for eye ointment. Products containing this substance are also subject to restrictions on maximum quantity which may be sold or supplied as a P medicine. These are not more than 10ml for eye drops and 5g for eye ointment.)

Various tear supplements and ocular lubricants

Xylometazoline hydrochloride

Supplementary and Independent prescribing

Supplementary Prescribing

Supplementary prescribing is defined as 'a voluntary partnership between an independent prescriber (a doctor or dentist) and a supplementary prescriber to implement an agreed patient-specific clinical management plan with the patient's agreement'. The plan sets out how much responsibility should be delegated and refers to a named patient and to their specific condition. Agreement to the plan must be recorded by both the independent and supplementary prescriber before supplementary prescribing begins. Both prescribers must also share access to a common patient record.

Supplementary prescribing for optometrists was introduced July 2005. Accreditation for specialist registration as a supplementary prescriber involves a course of further training approved by the GOC followed by the College of Optometrists CFA for Specialist Qualifications in Therapeutics (Supplementary Prescribing). Since 2009, supplementary prescribing has been integrated into the CFA for independent prescribing.

Although there are no legal restrictions on the clinical conditions that supplementary prescribers can treat nor the medicines that they can prescribe, since this type of prescribing requires a prescribing partnership with an independent prescriber and an agreed clinical management plan before it can begin, it is most useful when dealing with long-term medical conditions, such as glaucoma.

Independent Prescribing

Statutory legislation to enable independent prescribing by optometrists was introduced in June 2008. The proposed amendments were subject to public consultation and advice to Ministers by the Commission on Human Medicines (CHM). The CHM's recommendation was that suitably qualified optometrists should be able to prescribe any licensed medicine (except for controlled drugs or medicines for parenteral (injected) administration) for conditions affecting the eye, and the tissues surrounding the eye, within their recognised area of expertise and competence. Independent prescribers will be able to prescribe privately and where suitable arrangements have been made, write an NHS prescription. Accreditation for independent prescribing involves a course of further training approved by the GOC followed by the College of Optometrists CFA for Specialist Qualifications in Therapeutics (Independent Prescribing). Independent prescriber specialist registrants will also be accredited as supplementary prescribers and to supply drugs as additional supply optometrists.

College of Optometrist's Clinical Management Guidelines

The scope of optometrist independent prescribing is defined by the College Clinical Management Guidelines (CMGs), which provide a reliable source of evidence-based information on the diagnosis and management of a number of eye conditions that present with varying frequency in primary and first-contact care. Whilst they are intended specifically for specialist therapeutic prescribers, it is anticipated that all optometrists will find them a useful source of information. The CMGs are available from the College website www.college-optometrists.org

Pregnancy Risk Categories

The FDA has a categorization of drug risks to the fetus that runs from: "Category A" (safest) to "Category X" (known danger--do not use!)

Category A
Controlled studies in women fail to demonstrate a risk to the foetus in the first trimester (and there is no evidence of a risk in later trimesters), and the possibility of foetal harm appears remote.

Category B
Either animal-reproduction studies have not demonstrated a foetal risk but there are no controlled studies in pregnant women, or animal-reproduction studies have shown an adverse effect (other than a decrease in fertility) that was not confirmed in controlled studies in women in the first trimester (and there is no evidence of a risk in later trimesters).

Category C
Either studies in animals have revealed adverse effects on the foetus (teratogenic or embryocidal or other) and there are no controlled studies in women, or studies in women and animals are not available. Drugs should be given only if the potential benefit justifies the potential risk to the fetus.

Category D
There is positive evidence of human foetal risk, but the benefits from use in pregnant women may be acceptable despite the risk (e.g., if the drug is needed in a life-threatening situation or for a serious disease for which safer drugs cannot be used or are ineffective).

Category X
Studies in animals or human beings have demonstrated foetal abnormalities, or there is evidence of foetal risk based on human experience or both, and the risk of the use of the drug in pregnant women clearly outweighs any possible benefit. The drug is contraindicated in women who are or may become pregnant.

Acetazolamide

Legal Classification

POM: May be used and prescribed by independent prescribing optometrists.

Available Preparations

Acetazolamide: tablets, 250mg acetazolamide (Non-proprietary)
Diamox: tablets, 250mg acetazolamide (Goldshield)
Diamox SR: tablets (modified release), 250mg acetazolamide (Goldshield)

Drug Type

Anti-glaucoma.

Classification

Carbonic anhydrase inhibitor.

Indications

Emergency treatment of acute angle closure prior to surgery. See Clinical Management Guideline on angle closure glaucoma.

Contraindications

Hypersensitivity to acetazolamide or component of the preparation. Contraindicated in marked renal or hepatic disease. Acetazolamide should not be used in patients hypersensitive to sulphonamides.

Cautions

None for emergency treatment.

Pregnancy and Lactation

Pregnancy risk category B: Animal studies have reported embryotoxicity and teratogenicity in high doses and since there are no adequate and well-controlled studies in pregnant women, acetazolamide should be used in pregnancy only if the potential benefit to the mother clearly outweighs any possible risk to the developing foetus. Although acetazolamide has been reported to be excreted in human breast milk it is unlikely to lead to harmful effects following emergency use.

Interactions

None relevant to the emergency use of acetazolamide.

Ocular Side Effects

Transient myopia

Ocular Side Effects-Notes

Ocular side effects are unlikely in emergency use.

General Side Effects

Gastrointestinal disturbances e.g. nausea, vomiting and diarrhoea
Tingling feeling in the extremities
Polyuria
Thirst
Headache
Flushing
Dizziness

General Side effects-Notes

General side effects are unlikely in emergency use.

Dose

Adults: 250mg single (stat) dose (followed by emergency referral to an ophthalmologist).

Storage

Store below 30ºC.

Aciclovir

Legal Classification

POM: May be used and prescribed by independent prescribing optometrists.

Available Preparations

Zovirax: eye ointment, 3% aciclovir (GSK)

Drug type

Anti-infective.

Classification

Anti-viral.

Indications/Use

Aciclovir is indicated for the treatment of herpes simplex keratitis. See Clinical Management Guideline on Herpes Simplex Keratitis.

Contraindications

Hypersensitivity to aciclovir or any component of the preparation.

Cautions

Patients should avoid wearing contact lenses during treatment with aciclovir eye ointment.

Pregnancy and Lactation

Pregnancy risk category B. A post-marketing aciclovir registry has documented pregnancy outcomes in women exposed to any formulation of aciclovir. No unique or consistent pattern of birth defects has been reported. However, the use of acyclovir during pregnancy requires that the benefits be weighed against the potential risks to the foetus. Following systemic administration, aciclovir has been detected in the milk of nursing mothers. However, the dosage received following the use of aciclovir eye ointment is likely to be insignificant.

Interactions

There are no reported interactions. In the case of concomitant use of another topical eye preparation, allow 5-10 minutes between applications of each preparation.

Ocular Side Effects

Superficial punctate keratopathy
Transient mild stinging on instillation
Blepharitis

Ocular Side-effects-Notes

SPK is very commonly reported. Transient stinging on instillation is common, whereas blepharitis is a rare side effect.

General Side-effects

Hypersensitivity reactions

General Side-effects-Notes

Very rarely, hypersensitivity reactions including angioedema have been reported.

Dose

For adults & children (all ages): 1cm ribbon of ointment should be place in the lower conjunctival sac 5 times a day at approximately 4 hourly intervals (omitting overnight application). Treatment should be continued for at least 3 days after healing is complete.

Storage

Store below 30ºC.

Acrivastine

Legal Classification

GSL: For use and supply by all optometrists.

Available Preparations

Benadryl Allergy Relief: capsules, 8mg acrivastine (Mc Neil Products Ltd)
Benadryl Plus Capsules: 8mg acrivastine, 60mg pseudoephedrine (Mc Neil Products Ltd)

Drug Type

Anti-histamine.

Classification

Non-sedative antihistamine.

Indications

For the symptomatic relief of allergic rhinitis (hay fever) and its associated ocular symptoms, perennial rhinitis and chronic idiopathic urticaria. See Clinical Management Guideline on Conjunctivitis (Seasonal and Perennial).

Contraindications

Hypersensitivity to acrivastine or any component of the preparation.

Cautions

Second generation antihistamines are less lipophilic and do not penetrate the blood-brain barrier to any significant extent. They are therefore less likely to cause centrally mediated effects e.g. drowsiness. However, small numbers of patients experience such effects and therefore they need to be warned that acrivastine may affect driving and other skilled tasks. Acrivastine has a greater propensity to induce drowsiness than either cetirizine and loratidine.
Use with caution in patients with renal or hepatic impairment.
Products containing pseudoephedrine are contraindicated in patients with hypertension, heart disease, diabetes and in patients predisposed to narrow angle glaucoma.

Pregnancy and Lactation

Pregnancy risk category B: Animal studies, using oral doses many times higher than the recommended human dose, found no teratogenic effects. However, there are no adequate

and well-controlled studies in pregnant women. Because animal studies are not always predictive of human responses, acrivastine should be used in pregnancy only if the potential benefit to the mother clearly outweighs any possible risk to the developing foetus. Acrivastine has been reported to be excreted in human breast milk and is therefore not recommended in nursing mothers.

Interactions

Avoid excessive alcohol consumption.
The concomitant use of pseudoephedrine-containing products and monoamine oxidase inhibitors may cause a rise in blood pressure.

Ocular Side Effects

Dry eyes
Punctate keratitis

Ocular Side Effects-Notes

Ocular side effects are rare.

General Side Effects

Drowsiness
Skin rash
Urinary retention

General Side effects-Notes

General side effects are rare. Rashes and urinary retention have been associated with the use of pseudoephedrine.

Dose

Adults & children (12 years and over). One 8mg capsule up to three times a day.
Not recommended in elderly patients (>65 years).

Storage

Store below 30ºC.

Antazoline Sulphate

Legal Classification

P: For use and supply by all optometrists.

Available Preparations

Otrivine-Antistin: eye drops, 0.5% antazoline sulphate, 0.05% xylometazoline hydrochloride (Novartis Consumer Health)

Drug Type

Anti-inflammatory.

Classification

Anti-histamine.

Indications

For the temporary relief of redness and itching of the eye due to seasonal and perennial allergies such as hay fever or house dust allergy.
See Clinical Management Guideline on Conjunctivitis- seasonal and perennial allergic.

Contraindications

Hypersensitivity to antazoline, xylometazoline or any component of the preparation. Should not be used in patients taking monoamine oxidase inhibitors within the last 14 days.

Cautions

The only preparation available in the UK contains xylometazoline, which is a sympathomimetic and should be avoided in patients at risk of angle closure glaucoma. Use with caution in elderly patients with severe cardiovascular disease, including arrhythmia, poorly controlled hypertension, or diabetes. Similarly, sympathomimetics should also be used with caution in the presence of hypertension, cardiac irregularities, hyperthyroidism diabetes mellitus or phaeochromocytomas, also in patients with conditions causing urinary retention such as prostatic hypertrophy or patients who are currently receiving other sympathomimetic drugs.
Contact lens wear should not be worn during treatment. Preparation contains benzalkonium chloride as a preservative, which may accumulate in soft lenses and cause irritation.

Pregnancy and Lactation

Pregnancy risk category C. Safety in pregnancy has not been established. Should be used with caution during pregnancy and only if the expected benefit to the mother is greater than any possible risk to the developing foetus.
It is not known whether antazoline is excreted in breast milk. Its use in nursing mothers therefore requires that the benefits be weighed against the potential risks to the infant.

Interactions

Should not be used in patients receiving monoamine oxidase inhibitors or within 14 days of stopping such treatment (risk of hypertensive crisis). Should be used with caution in patients receiving other medications such as digitalis, beta-adrenergic blockers, guanetidine, reserpine, methyldopa or anti-hypertensive agents.
Sedating anti-histamines can enhance the sedating effects of CNS depressants including alcohol, hypnotics, opioid analgesics, anxiolytic sedatives, and anti-psychotics. They also have an additive anti-muscarinic action with other anti-muscarinic drugs, such as atropine, and some antidepressants
In the case of concomitant use of another topical eye preparation, allow 5-10 minutes between applications of each preparation.

Ocular Side Effects

Transient stinging
Blurring
Conjunctival hyperaemia
Conjunctival follicles
Local allergic reaction (rash, oedema, pruritus)
Acute closed angle glaucoma

Ocular Side Effects- Notes

Rebound hyperaemia may occur. Ocular side effects are uncommon and typically transient. Xylometazoline is a sympathomimetic and may precipitate angle closure glaucoma in susceptible individuals. Recent case reports of severe follicular conjunctivitis.

General Side Effects

Headaches
Dizziness
Drowsiness

Dose

Adults & children (12 years and over) apply 1 drop two to three times daily.

Storage

Store below 25ºC.

Aspirin

Legal Classification

POM: May be used and prescribed by independent prescribing optometrists.
P: For use and supply by all optometrists.
GSL: For use and supply by all optometrists.

Available Preparations

POM:
Aspirin: tablets, 300mg aspirin (Non-proprietary)
Caprin: tablets, 300mg aspirin (PInewood)
Nu-seals Aspirin: tablets, 300mg aspirin (Alliance)

P and GSL (up to 16 tablets, GSL, up to 32 tablets, P, >32 Tablets classed as POM):
Aspirin: tablets, 300mg aspirin (Non-proprietary)
Anadin Original: tablets, 325mg aspirin (Wyeth Consumer Healthcare)
Aspro Clear: tablets, 300mg aspirin (Bayer PLC Consumer Healthcare)
Aspro Clear Maximum Strength: soluble tablets, 500mg aspirin (Bayer PLC Consumer Healthcare)
Disprin: tablets, 300mg aspirin (Reckitt Benckiser Healthcare)

Combination products:
P and GSL:
Anadin Extra: tablets, 300mg aspirin, 200mg paracetamol (Wyeth Consmer Healthcare)
Codis 500 Soluble Tablets: 500mg aspirin, 8mg codeine phosphate (Reckitt Benckiser Healthcare)
Disprin Extra: tablets, 300mg aspirin, 200mg paracetamol (Reckitt Benckister Healthcare)

Drug Type

Non-opioid analgesics.

Classification

Non-steroidal anti-inflammatory analgesic.

Indications

Mild to moderate pain from a variety of causes.

Contraindications

Aspirin should be avoided in patients with gastric ulcers or a history of gastric problems and in patients with a history of bleeding disorders or on anti-coagulant therapy must avoid OTC

aspirin products. Due to risk of Reyes Syndrome aspirin is no longer licensed in children under the age of 16.

Cautions

The elderly are at increased risk of NSAID-induced adverse reactions. Particular caution is required in patients with renal, cardiac or hepatic impairment. The dose should be as low as possible. Use with caution in patients with asthma.

Pregnancy and Lactation

Pregnancy risk category D. There have been reports of NSAID toxicity during the early stages of pregnancy in animal studies. Most manufacturers therefore recommend that aspirin should not be used during pregnancy. Aspirin passes into breast milk in very low levels and due to the risk of Reyes Syndrome it should be avoided in nursing mothers.

Interactions

Should not be used with other NSAIDs. Aspirin potentiates the anti-coagulant effect of warfarin and may enhance the effects of oral hypoglycaemics of the sulphonylurea type and also enhance the toxicity of methotrexate.
Alcohol and corticosteroids may enhance the effects of aspirin on the gastrointestinal tract

Ocular Side Effects

Transient blurring
Refractive changes
Dry eyes
Colour vision disturbances

Ocular Side Effects-Notes

Ocular side effects are rare and have generally been described in patients taking high doses. There have been rare reports of transient myopia.

General Side Effects

Abdominal pain, nausea and dyspepsia
Peptic ulcer and gastro-intestinal haemorrhage.
Hypersensitivity reactions

General Side effects-Notes

Dyspepsia is relatively common, other side effects are rare. Hypersensitivity reactions have been reported following treatment with aspirin, consisting of urticaria, rhinitis, angioneurotic oedema and severe bronchospasm.

Dose

Adults & children (16 years and over): 300-900mg every 4-6 hours, with or after food. Maximum daily dose 3600mg.

Storage

Store below 25ºC.

Atropine Sulphate

Legal Classification

POM: For use and supply by additional supply optometrists. May be used and prescribed by independent prescribing optometrists.

Available Preparations

Atropine Sulphate: eye drops, 0.5% atropine sulphate (non-proprietary)
Atropine Sulphate: eye drops, 1% atropine sulphate (non-proprietary)
Atropine Sulphate: eye ointment, 1% atropine sulphate (non-proprietary)

Single Use (Preservative-free):
Minims Atropine Sulphate: eye drops, 1% atropine sulphate (Bausch & Lomb)

Drug Type

Mydriatic and cycloplegic.

Classification

Antimuscarinic.

Indications

As a topical cycloplegic. Also used for dilating the pupil in anterior uveitis, the alleviation of ciliary spasm following corneal abrasion and for penalisation therapy in amblyopia. See Clinical Management Guidelines on Corneal Abrasion and Anterior Uveitis.

Contraindications

Hypersensitivity to atropine or any component of the preparation.
Contraindicated in patients with confirmed or suspected narrow angle glaucoma as an acute attack may be precipitated.

Cautions

Risk of systemic effects in infants < 3 months (eye ointment preferred as it reduces systemic absorption). Use with caution in patients at higher risk of systemic effects e.g. debilitated or elderly patients or patients with Downs Syndrome. Children with brain damage may also demonstrate a hyper-reactive response to atropine. Systemic absorption may be reduced by compressing the lacrimal sac at the medial canthus during, and for 2-3 minutes after instillation of the drops.
Multidose aqueous formulations contain benzalkonium chloride as a preservative and should not be used when soft contact lenses are worn.

Pregnancy and Lactation

Pregnancy risk category C. Safety of atropine for use in pregnancy has not been established. Atropine passes into breast milk in small amounts and may cause anti-cholinergic effects in babies of nursing mothers. Atropine should therefore be used in pregnancy and lactation only where benefits to the mother outweigh the potential risks to the developing foetus or baby.

Interactions

The effect of antimuscarinic agents may be enhanced by the concomitant administration of other drugs with antimuscarinic properties such as amantadine, some anti-histamines, butyrophenones, phenothiazines and tricyclic anti-depressants. In the case of concomitant use of another topical eye preparation, allow 5-10 minutes between applications of each preparation.

Ocular Side Effects

Transient stinging
Transient blurring
Photophobia
Conjunctival hyperaemia
Conjunctival oedema
Raised intra-ocular pressure

Ocular Side Effects-Notes

Hypersensitivity reactions may rarely occur, characterised by an allergic lid reaction, hyperaemia and follicular conjunctivitis.

General Side Effects

Dry mouth
Dry skin
Flushing
Increased body temperature
Tachycardia
CNS effects

General Side effects-Notes

Anticholinergic effects e.g. dry mouth, flushing etc. are more likely to occur in infants and children. Contact dermatitis is not uncommon with atropine. CNS effects can occur, including: ataxia, hallucinations and drowsiness.

Dose

Not recommended in children <3 months.

Adults & children (3 months and over):
For cycloplegic refraction: eyedrops, use 1 drop (1%) twice per day for 1-3 days before refraction. For ointment, use a thin strip 3 times a day for 1-3 days before refraction (do not use on the day of the refraction).

For uveitis: use 1 drop (1%) once or twice per day.

Storage

Store below 25ºC. Protect from light.

Azelastine Hydrochloride

Legal Classification

POM: For use and supply by additional supply optometrists. May be used and prescribed by independent prescribing optometrists.

Available Preparations

Optilast: eye drops: 0.05% azelastine hydrochloride (Meda)

Drug Type

Anti-inflammatory.

Classification

Anti-histamine.

Indications

Licensed for the treatment of seasonal allergic conjunctivitis in adults and children > 4 years, and the treatment of non-seasonal (perennial) allergic conjunctivitis in adults and children >12 years.
See Clinical Management Guideline on Conjunctivitis- seasonal and perennial allergic.

Contraindications

Hypersensitivity to azelastine or any component of the preparation.

Cautions

Contact lenses should not be worn during treatment. Contains benzalkonium chloride as a preservative, which may accumulate in soft lenses and cause irritation.

Pregnancy and Lactation

Pregnancy risk category C. Animal studies have shown that high oral doses of azelastine induce adverse effects on the foetus and since there are no well controlled studies in pregnant women, azelastine should not to used in pregnancy. Azelastine is excreted into breast milk in low quantities and is therefore not recommended during lactation.

Interactions

There are no reported interactions. In the case of concomitant use of another topical eye preparation, allow at least 10 minutes between applications of each preparation.

Ocular Side Effects

Transient irritation
Transient stinging
Transient burning
Transient blurring

Ocular Side Effects-Notes

In controlled multidose studies, approximately 30% of patients experienced transient burning/stinging. Transient blurring is reported by small numbers of patients.

General Side Effects

Headache
Bitter taste

General Side effects-Notes

In controlled trials 15% of subjects reported headache and 10% reported a bitter taste following application.

Dose

Seasonal allergic conjunctivitis: adults & children (4 years and over), 1 drop applied twice daily or more frequently (up to four times daily) if required.

Perennial allergic conjunctivitis: adults & children (12 years and over), 1 drop applied twice daily or more frequently (up to four times daily) if required.
Maximum duration of treatment is 6 weeks.

Storage

Store below 25°C.

Carbomers

Legal Classification

P: For use and supply by all optometrists.
CE: For use and supply by all optometrists.

Available Preparations

P
GelTears: gel, 0.2% carbomer 980 (Bausch and Lomb)
Liposic: gel, 0.2% carbomer 980 (Bausch and Lomb)
Liquivisc: gel, 0.25% carbomer 974P (Spectrum Thea)
Lumecare Long Lasting Eye Gel, 0.2% carbomer 980 (Medicom)
Viscotears: liquid gel, 0.2% carbomer 980 (Novartis)

Single Use (Preservative-free):
Viscotears Single Dose: liquid gel, 0.2% carbomer 980 (Novartis)

CE
Clinitas Hydrate: gel, 0.2% carbomer 980 (Altacor)

Drug Type

Artificial tears/ Ocular lubricants.

Classification

Artificial tears.

Indications

Carbomers are synthetic high molecular weight polymers of acrylic acid used for the treatment of dry eye or an unstable tear film. See Clinical Management Guideline on Tear Deficiency.

Contraindications

Hypersensitivity to carbomers or any component of the preparation.

Cautions

Multidose preparations contain preservatives (benzalkonium chloride or cetrimide) which may accumulate in soft contact lenses and cause irritation. Consider single use (unpreserved) preparations for soft lens wearers. Consult preservative tables for contact lens compatibility.

Pregnancy and Lactation

Pregnancy risk category C. There are no adequate and well-controlled studies of carbomers in pregnant woman or lactation. Although the risk is low they cannot be recommended in pregnancy or lactation.

Interactions

There are no reported interactions. In the case of concomitant use of another topical eye preparation, allow 5-10 minutes between applications of each preparation.

Ocular Side Effects

Transient blurring

General Side Effects

None

Dose

Adults & children (1 month and over). Apply 1or 2 drops three to four times per day or as required. If > 6 drops per day consider a non-preserved tear supplement.

Storage

Store below 25ºC.

Carmellose Sodium

Legal Classification

P: For use and supply by all optometrists.
CE: For use and supply by all optometrists.

Available Preparations

P
Single Use (Preservative-free)
Celluvisc: eye drops, 1% carmellose sodium (Allergan)
Celluvisc: eye drops, 0.5% carmellose sodium (Allergan)

CE
Optive: eyedrops, 0.5% carmellose sodium in glycerine (Allergen)

Drug Type

Artificial tears/ Ocular lubricants.

Classification

Artificial tears.

Indications

Tear substitute for the treatment of dry eye. See Clinical Management Guideline on Tear Deficiency.

Contraindications

Hypersensitivity to carmellose sodium or any component of the preparation.

Cautions

None.

Pregnancy and Lactation

Pregnancy risk category C. There are no adequate and well-controlled studies of carmellose sodium in pregnancy or lactation. However, due to the negligible systemic exposure and the lack of pharmacological activity carmellose can be used during pregnancy and in nursing mothers.

Interactions

There are no reported interactions. In the case of concomitant use of another topical eye preparation, allow 5-10 minutes between applications of each preparation.

Ocular Side Effects

Transient blurring

General Side Effects

None

Dose

Adults & children (1 month and over). Apply 1 or 2 drops 3-4 times per day or as required.

Storage

Store below 25ºC.

Cetirizine Hydrochloride

Legal Classification

P: For use and supply by all optometrists.
GSL: For use and supply by all optometrists.

Available Preparations

P and GSL (GSL, maximum pack size, 14 tablets):
Benadryl One A Day Relief: tablets, 10mg cetirizine hydrochloride (Mc Neil Products Ltd)
Piriteze Allergy Tablets: tablets,10mg cetirizine hydrochloride (GSK Consumer Healthcare)
Zirtek Allergy Relief: tablets,10mg cetirizine hydrochloride (UCB Pharma Ltd)

Preparations for children:
P and GSL:
Benadryl Allergy Oral Syrup: oral solution,1mg/ml cetirizine hydrochloride (Mc Neil Products Ltd)
Benadryl for Children Allergy Solution: oral solution,1mg/ml cetirizine hydrochloride (Mc Neil Products Ltd)
Piriteze Allergy Syrup: oral solution, 1mg/ml cetirizine hydrochloride (GSK Consumer Healthcare)
Zirtek Allergy Solution: oral solution,1mg/ml cetirizine hydrochloride (UCB Pharma Ltd)

Drug Type

Anti-histamine.

Classification

Non-sedative antihistamine.

Indications

For the control of the symptoms of seasonal allergic rhinitis (hay fever) including ocular symptoms, perennial allergic rhinitis and other allergies e.g. insect bites, allergic skin reactions.
See Clinical Management Guideline on Conjunctivitis (Seasonal and Perennial).

Contraindications

Hypersensitivity to cetirizine or any component of the preparation.

Cautions

Second generation antihistamines are less lipophilic and do not penetrate the blood-brain barrier to any significant extent. They are therefore less likely to cause centrally mediated effects e.g. drowsiness. However, approx. 6% of patients experience such effects and therefore patients need to be warned that cetirizine may affect driving and other skilled tasks.
Use with caution in patients with renal or hepatic impairment.

Pregnancy and Lactation

Pregnancy Category B: In animal studies, cetirizine was not teratogenic in doses many times higher than the maximum recommended human dose. However, there are no adequate and well-controlled studies in pregnant women and because animal studies are not always predictive of human response, cetirizine should be used in pregnancy only if clearly needed. Cetirizine has been reported to be excreted in human breast milk and therefore its use in nursing mothers is not recommended.

Interactions

Avoid excessive alcohol consumption. Anticholinergic effects of cetirizine (e.g. dry mouth, blurred vision) may be enhanced by drugs with anticholinergic effects such as antipsychotics or tricyclic antidepressants.

Ocular Side Effects

Blurred vision
Dry eyes
Oculogyric crisis

Ocular Side Effects-Notes

Ocular side effects are very rare.

General Side Effects

Drowsiness
Fatigue
Headache
Dizziness
Agitation
Dry mouth
Gastointestinal discomfort

General Side effects-Notes

General side effects are rare and are more likely to occur in children.

Dose

Adults & children (12 years and over): one 10mg tablet daily.
Children 6 to 11 years: 10ml (10mg) once daily or 5ml twice daily
Children 2 to 5 years (licensed for seasonal allergic rhinitis only): 5ml (5mg) once daily or 2.5ml twice daily.

Storage

Store below 30ºC.

Chloramphenicol

Legal Classification

POM: For use and supply by all optometrists. May be used and prescribed by independent prescribing optometrists.
P: For use and supply by all optometrists.

Available Preparations

POM:
Chloramphenicol: eyedrops, 0.5% chloramphenicol (Non-Proprietary)
Chloramphenicol: ointment, 1.0% chloramphenicol (Non-Proprietary)
Chloromycetin Redidrops: eyedrops, 0.5% chloramphenicol (Goldshield)
Chloromycetin Ophthalmic Ointment: 1.0% chloramphenicol ointment (Goldshield)

Single Use (Preservative-free):
Minims Chloramphenicol: eyedrops, 0.5% chloramphenicol (Bausch & Lomb)

Over the counter (P):
Boots Pharmacy Antibiotic Eyedrops: 0.5% chloramphenicol (Boots Company PLC)
Brochlor Eye Drops: 0.5% chloramphenicol (Sanofi-Aventis)
Brochlor Eye Ointment: 1.0% chloramphenicol (Sanofi-Aventis)
Golden Eye Antibiotic 0.5% w/v Chloramphenicol Eye Drops (Typharm)
Golden Eye 1% w/v Chloramphenicol Ointment (Typharm)
Galpharm Chloramphenicol 0.5% w/v antibiotic Eye Drops: (Galpharm)
Galpharm Antibiotic Eye Ointment: (Galpharm)
Optrex Infected Eyes: eyedrops, 0.5% chloramphenicol (Crookes Healthcare)
Optrex Infected Eyes: ointment, 1.0% chloramphenicol (Crookes Healthcare)

Drug type

Anti-infective.

Classification

Anti-bacterial.

Indications/Use

POM: First line topical treatment for superficial ocular infections and as a prophylactic agent following minor ocular trauma.

P: Licensed for acute bacterial conjunctivitis.

See Clinical Management Guidelines on Hordeolum, Blepharitis, Conjunctivitis (Bacterial), Dacryocystitis (Chronic), Corneal Abrasion, Foreign Body (Sub-tarsal).

Contraindications

Hypersensitivity to chloramphenicol or any component of the preparation.
Previous history or family history of blood dyscrasias.

Cautions

Contact lenses should not be worn during treatment. Multidose aqueous formulations contain phenylmercuric nitrate as a preservative, which may accumulate in soft lenses and cause irritation.

Pregnancy and Lactation

Pregnancy risk category C. There are no well-controlled studies of chloramphenicol in pregnant women and thus its safety for use in pregnancy has not been established. Chloramphenicol is excreted in human breast milk and therefore should therefore not be used in nursing mothers. Neonatal exposure to topical chloramphenicol carries a theoretical risk of grey baby syndrome (chloramphenicol toxicity in newborns resulting from the lack of liver enzymes necessary to metabolize the drug).

Interactions

There are no reported interactions. In the case of concomitant use of another topical eye preparation, allow 5-10 minutes between applications of each preparation.

Dose

POM: Adults & children (1 month and over).
P: Adults & children (2 years and over). Maximum duration of treatment 5 days.

Eye drops: apply 1 drop into the infected eye every 2 hours for 48 hours. After this period, treatment should be every 4 hours during waking hours. Eye drops may be supplemented by ointment at night. The course of treatment should last 5 days (even if symptoms improve).
Eye ointment: put a small amount into the affected eye four times a day for 2 days, and then twice a day for 5 days.

Ocular Side Effects

Transient irritation
Transient stinging
Transient blurring

Ocular Side Effects-Notes

Ocular side effects are rare. Transient irritation or stinging may occur on instillation. Ophthalmic ointment may cause blurring on application. Hypersensitivity reactions may rarely occur.

General Side Effects

Aplastic anaemia.

General Side Effects-Notes

Myelosupression following the use of topical chloramphenicol is not yet proven and the possibility of idiosyncratic aplastic anaemia arising following treatment is extremely unlikely.

Storage

Store between 2 and 8ºC. Protect from light.

Chlorphenamine Maleate

Legal Classification

P: For use and supply by all optometrists.

Available Preparations

Chlorphenamine: tablets, 4mg chlorphenamine maleate (Non-proprietary)
Piriton Allergy Tablets: tablets, 4mg chlorphenamine maleate (GSK Consumer Healthcare)

Preparations for children:
Chlorphenamine: oral solution, 2mg/5ml chlorphenamine maleate (Non-proprietary)
Piriton Syrup: oral solution, 0.4mg/ml chlorphenamine maleate (GSK Consumer Healthcare)

Drug Type

Anti-histamine.

Classification

Sedating antihistamine.

Indications

For the control of the symptoms of seasonal allergic rhinitis (hay fever) including ocular symptoms, perennial allergic rhinitis and other allergies e.g. insect bites, allergic skin reactions.
See Clinical Management Guideline on Conjunctivitis (Seasonal and Perennial).

Contraindications

Hypersensitivity to chlorphenamine or any component of the preparation.

Cautions

Drowsiness may affect performance in skilled tasks (e.g. driving). Children and the elderly are more likely to experience the neurological anticholinergic effects and paradoxical excitation (eg. Increased energy, restlessness, nervousness).

Pregnancy and Lactation

Pregnancy risk category B. There is inadequate evidence of the safety of chlorphenamine in human pregnancy. It should only be used when clearly needed and when the potential benefits outweigh the potential unknown risks to the foetus. It is reasonable to assume that chlorphenamine is secreted in breast milk and therefore use in nursing mothers requires that the therapeutic benefits outweight the potential hazards to the baby.

Interactions

Avoid excessive alcohol consumption. Anticholinergic effects of chlorphenamine (e.g. dry mouth, blurred vision) may be enhanced by drugs with anticholinergic effects such as antipsychotics, MAOI or tricyclic antidepressants. Chlorphenamine inhibits phenytoin metabolism and can lead to phenytoin toxicity.
Concurrent use of chlorphenamine and hypnotics or anxiolytics may cause an increase in sedative effects.

Ocular Side Effects

Blurred vision
Dry eyes
Mydriasis

Ocular Side Effects-Notes

Ocular side effects are rare and reversible when treatment is ceased. Prolonged use causes blurred vision, anisocoria and decreased accommodation.

General Side Effects

Drowsiness
Fatigue
Headache
Dizziness
Psychomotor impairment
Dry mouth
Gastointestinal disturbances

General Side effects-Notes

General side effects are rare and are more likely to occur in children and the elderly.

Dose

Adults & children (12 years and over): one 4mg tablet every 4-6 hours (max. dose 24mg in 24h)
The elderly are more likely to experience neurological anticholinergic effects. Consideration should be given to using a lower daily dose (e.g. a maximum of 12mg in any 24 hours).

Child preparations
Children aged 1 - 2 years: 2.5ml (1mg) twice daily. The minimum interval between the doses should be 4 hours. Maximum daily dose: 5ml (2mg) in any 24 hours.
Children aged 2 - 6 years: 2.5ml (1mg) every 4 to 6 hourly. Maximum daily dose: 15ml (6mg) in any 24 hours.
Children 6 to 11 years: 1 x 5ml or 1/2 tablet every 4-6 hours (max. 30ml daily)

Storage

Store below 30ºC.

Cyclopentolate Hydrochloride

Legal Classification

POM: For use and supply by all optometrists.

Available Preparations

Mydrilate: eye drops, 0.5% cyclopentolate hydrochloride (Intrapharm)
Mydrilate: eye drops, 1.0% cyclopentolate hydrochloride (Intrapharm)

Single Use (Preservative-free):
Minims Cyclopentolate: eyedrops, 0.5% cyclopentolate hydrochloride (Bausch & Lomb)
Minims Cyclopentolate: eyedrops, 1% cyclopentolate hydrochloride (Bausch & Lomb)

Drug Type

Mydriatic and cycloplegic.

Classification

Antimuscarinic.

Indications

Drug of choice for cycloplegic refraction. Also used for dilating the pupil in anterior uveitis, the alleviation of ciliary spasm following corneal abrasion and for penalisation therapy in amblyopia. See Clinical Management Guidelines on Corneal Abrasion and Anterior Uveitis.

Contraindications

Hypersensitivity to cyclopentolate or any component of the preparation.
Contraindicated in patients with confirmed or suspected narrow-angle glaucoma as an acute attack may be precipitated.

Cautions

Use with caution in very young children and other patients at particular risk, such as debilitated or aged patients. Darkly pigmented irises are more resistant to pupillary dilation and caution should be exercised to avoid overdosage. Systemic absorption may be reduced by compressing the lacrimal sac at the medial canthus during, and for 2-3 mins after instillation of the drops.
Multidose aqueous preparations contain benzalkonium chloride and should not be used when soft contact lenses are worn.

Pregnancy and Lactation

Pregnancy risk category C. There are no adequate and well-controlled studies of cyclopentolate in pregnant women. Cyclopentolate should not be used in pregnancy unless the benefit to the mother clearly outweighs the risk to the developing foetus. It is not known whether cyclopentolate is excreted in breast milk. It should therefore be used with caution in nursing mothers.

Interactions

The effect of anti-muscarinic agents may be enhanced by the concomitant administration of other drugs with anti-muscarinic properties such as amantadine, some anti-histamines, butyrophenones, phenothiazines and tricyclic anti-depressants.
In the case of concomitant use of another topical eye preparation, allow 5-10 minutes between applications of each preparation.

Ocular Side Effects

Transient stinging
Transient blurring
Photophobia
Raised intraocular pressure
Conjunctival hyperaemia
Conjunctival oedema

Ocular Side Effects-Notes

Hypersensitivity reactions may rarely occur. Sensitivity to light occurs secondary to pupillary dilation. Prolonged administration may lead to local irritation, hyperaemia, oedema and conjunctivitis.

General Side Effects

CNS disturbances
Dry mouth
Flushing
Tachycardia
Urinary symptoms
Gastro-intestinal symptoms

General Side effects-Notes

Systemic cyclopentolate toxicity is dose-related. It is uncommon following administration of the 1% solution and would not be expected to occur following instillation of 0.5% solution. Children are, however, more susceptible to such reactions than adults. Toxicity is usually transient and is manifest mainly by CNS disturbances (ataxia, incoherent speech, restlessness, hallucinations, hyperactivity, disorientation). Systemic anticholinergic toxicity is a rare consequence of systemic absorption.

Dose

Adults and children (12 years and over):
For cyclopegic refraction: 1 drop of 0.5% solution (which may be repeated after five minutes) is usually sufficient. Maximum effect is induced in 30-60 minutes after instillation.
For anterior & posterior uveitis and posterior synechiae breakdown: 1 - 2 drops (1%) are instilled every 6-8 hours.
For alleviation of ciliary spasm: 1 drop (1%) 2-3 times per day.

Children:
Not recommended in children under 3 months.
For cycloplegic refraction: 3 months - 12 years: 1 drop of a 1% solution to each eye.
Children should be observed for 45 minutes after instillation.

Storage

Store below 25ºC. Protect from light.
Mydrillate should be stored between 2 and 8ºC.

Diclofenac sodium

Legal Classification

POM: For use and supply by additional supply optometrists. May be used and prescribed by independent prescribing optometrists.

Available Preparations

Voltarol Ophtha: eye drops, 0.1% diclofenac sodium (Novartis)

Single use (preservative-free)
Voltarol Ophtha: eye drops, 0.1% diclofenac sodium (Novartis)

Drug Type

Anti-inflammatory.

Classification

Non-steroidal anti-inflammatory.

Indications

Reduction of peroperative miosis and postoperative inflammation. Control of pain following corneal epithelial defects. Seasonal allergic conjunctivitis. See Clinical Management Guidelines on Conjunctivitis (Seasonal and Perennial) and Corneal Abrasion.

Contraindications

Hypersensitivity to diclofenac sodium or any component of the preparation.

Cautions

Use of topical NSAIDs may result in keratitis. In some susceptible patients continued use of topical NSAIDs may result in epithelial breakdown, corneal thinning, corneal infiltrates, corneal erosion, corneal ulceration, and corneal perforation. These events may be sight-threatening. Patients with evidence of corneal epithelial breakdown should immediately discontinue use of topical NSAIDs and corneal health should be closely monitored.
Caution should be exercised when topical NSAIDs are used concomitantly with topical steroids.
Contact lens wear should be discontinued during treatment. The multidose preparation contains benzalkonium chloride as a preservative, which may accumulate in soft lenses and cause irritation.

Pregnancy and Lactation

Pregnancy risk category B. There are no data on the use of diclofenac eyedrops in pregnancy. Studies in animals have shown reproductive toxicity with diclofenac. 1st and 2nd trimester: Animal studies to date have shown no risk to the foetus but no controlled studies in pregnant women are available. 3rd trimester: diclofenac eyedrops should not be used due to a possible risk of premature closure of the ductus arteriosus and possible inhibitions of contractions.

Diclofenac is excreted in breast milk. However, at therapeutic doses of Voltarol Ophtha no effects on the suckling child are anticipated. Use of ocular diclofenac is not recommended during breast feeding unless the expected benefits outweigh the possible risks.

Interactions

There are no reported interactions. In the case of concomitant use of another topical eye preparation, allow at least 10 minutes between each application.

Ocular Side Effects

Transient burning
Irritation
Punctate keratitis
Raised intraocular pressure
Dry eyes
Itching
Hyperaemia and blurring on instillation

Ocular Side Effects-Notes

A mild to moderate burning sensation is the most frequently reported adverse reaction (15%). In high risk patients (corticosteroid use/rheumatic disease) diclofenac has been associated, in rare cases, with corneal ulceration or thinning. Most patients were treated for a prolonged period of time. Raised IOP has also been noted (usually post-surgery).

General Side Effects

Abdominal discomfort
Asthenia
Dizziness
Headaches
Nausea
Dyspnoea

General Side Effects-Notes

The following systemic adverse reactions occur in 3% or less of the patients: abdominal pain, asthenia, chills, dizziness, facial oedema, fever, headache, insomnia, nausea, pain, rhinitis, viral infection, and vomiting.
In rare cases dyspnoea and exacerbation of asthma have been reported.

Dose

Not licensed for use in children.
Control of ocular pain associated with corneal epithelial defects after accidental non-penetrating trauma: apply 1 drop 4 times daily for up to 2 days.
The relief of the ocular signs and symptoms of seasonal allergic conjunctivitis: apply 1 drop 4 times daily for as long as required.

Storage

Store below 25°C (multidose), 2-8°C (unit dose). Do not freeze.

Doxycycline

Legal Classification

POM: May be used and prescribed by independent prescribing optometrists.

Available Preparations

Doxycycline: capsules, 50mg doxycycline hyclate (Non-proprietary)
Doxycycline: capsules, 100mg doxycycline hyclate (Non-proprietary)
Vibramycin D: dispersible tablets,100mg doxycycline monohydrate (Pfizer)

Modified release
Efracea: capsules, 40mg doxycycline monohydrate (Galderma)

Drug Type

Anti-infective.

Classification

Anti-bacterial.

Indications

Doxycycline has been found to be clinically effective in the treatment of a variety of infections caused by susceptible strains of Gram-positive and Gram-negative bacteria and certain other micro-organism. See Clinical Management Guidelines on Blepharitis and Ocular Rosacea.

Contraindications

Hypersensitivity to doxycycline or component of the preparation. Hypersensitivity to any other members of the tetracycline family. Doxycycline is contraindicated in children less than 12 years of age and in pregnant or nursing women.

Cautions

Use with caution in patients with hepatic impairment. May cause photosensitivity and patients should use skin protection, avoid prolonged exposure to sunlight and advised not use tanning equipment. A few cases of pregnancy have been attributed to the use of tetracycline antibiotics with oral contraceptives. Patients taking contraceptives containing oestrogen should be warned that there is a possibility of contraceptive failure and advised to use alternative forms of contraception during treatment. Use with caution in patients with SLE or myasthenia gravis as tetracyclines may exacerbate these conditions.

Pregnancy and Lactation

Pregnancy risk category D: contraindicated in pregnancy. Animal studies have shown that tetracyclines cross the placenta and can cause toxicity to the foetus. Yellow-brown discolouration of the teeth and enamel hypoplasia can occur when drugs of the tetracycline family are administered after the first trimester of pregnancy. Tetracyclines are excreted into breast milk and therefore contraindicated in nursing mothers.

Interactions

Antacids and preparations containing aluminium, calcium, magnesium, zinc, bismuth or iron may decrease the absorption of doxycycline. Tetracyclines decrease plasma prothrombin activity and a dose reduction in patients taking anticoagulants may be necessary. Tetracyclines may reduce the effect of oral contraceptives (see cautions). Tetracyclines may increase the plasma concentration of cyclosporin.

Ocular Side Effects

Blurred vision
Field loss
Diplopia
Discoloration of the conjunctiva and lacrimal secretions

Ocular Side Effects-Notes

Ocular side effects are rare. Visual disturbance (blurred vision, field loss, diplopia) has been reported in association with benign intracranial hypertension.

General Side Effects

Gastrointestinal disturbances e.g. nausea, vomiting and diarrhoea
Oesophagitis and oesophageal ulceration
Discolouration of teeth and enamel hypoplasia (young children)
Abnormal bone growth (young children)
Hypersensitivity reactions
Headache
Photosensitivity
Benign intracranial hypertension

General Side effects-Notes

Gastrointestinal disturbances are commonly reported. The presence of headache and visual disturbance may indicate benign intracranial hypertension (discontinue treatment).

Dose

For blepharitis and ocular rosacea: treatment may need to be continued for several weeks or months.
Adults: 2 x 50mg capsules once daily (or 1 x100mg daily).

Storage

Store below 25ºC.

Emedastine

Legal Classification

POM: For use and supply by additional supply optometrists. May be used and prescribed by independent prescribing optometrists.

Available Preparations

Emadine: eyedrops, 0.05% emedastine (as difumarate) (Alcon)

Drug Type

Anti-inflammatory.

Classification

Anti-histamine.

Indications.

Treatment of seasonal allergic conjunctivitis.
See Clinical Management Guideline on Conjunctivitis- seasonal and perennial allergic.

Contraindications.

Hypersensitivity to emedastine or any component of the preparation.

Cautions.

Contact lenses should not be worn during treatment. Preparation contains benzalkonium chloride as a preservative, which may accumulate in soft contact lenses and cause irritation.

Pregnancy and Lactation.

Pregnancy risk category B. Safety in pregnancy has not been established. Foetal toxicity has been reported in animals after oral doses many times higher than the ophthalmic dose. It is therefore recommended that emedastine is not used during pregnancy. Emedastine has also been detected in breast milk in animal studies and therefore this medicine should be avoided in nursing mothers.

Interactions.

There are no reported interactions. In the case of concomitant use of another topical eye preparation, allow 5-10 minutes between applications of each preparation.

Ocular Side Effects.

Transient irritation
Dry eye
Foreign body sensation
Conjunctival hyperaemia
Corneal infiltrates

Ocular Side Effects-Notes.

In controlled trials, ocular side effects were reported in 14-18% of patients. Transient irritation on instillation is the most commonly reported side effect. Less common effects include dry eye, foreign body sensation, conjunctival hyperaemia (reported in less than 5%). Corneal infiltrates have been reported in conjunction with the use of emedastine.

General Side Effects.

Headache
Rhinitis

General Side Effects-Notes.

Occasional systemic adverse events are reported, including: headache (11%), rhinitis, cold syndrome, pain and back pain.

Dose.

Adults & children (3 years and over), 1 drop applied twice daily.

Storage.

Store below 25ºC.

Epinastine Hydrochloride

Legal Classification

POM: May be used and prescribed by independent prescribing optometrists.

Available Preparations

Relestat: eye drops, 0.5mg per ml epinastine hydrochloride (Allergan)

Drug type

Anti-inflammatory.

Classification

Anti-histamine.

Indications/Use

Epinastine is indicated for the treatment of the symptoms of seasonal allergic conjunctivitis. See Clinical Management Guideline on Conjunctivitis (Seasonal and Perennial).

Contraindications

Hypersensitivity to epinastine or any component of the preparation.

Cautions

Contact lenses should not be worn during treatment. Contains benzalkonium chloride as a preservative, which may accumulate in soft lenses and cause irritation.

Pregnancy and Lactation

Pregnancy risk category C. Data is limited on the safety of epinastine in pregnancy. Therefore, the use of epinastine during pregnancy requires that the benefits be weighed against the potential risks to the foetus. It is not known whether epinastine is excreted in human breast milk. Caution should be exercised when prescribing epinastine to breast-feeding women.

Interactions

There are no reported interactions. In the case of concomitant use of another topical eye preparation, allow 5-10 minutes between applications of each preparation.

Ocular Side Effects

Mild burning sensation
Dry eye
Conjunctival hyperaemia
Conjunctival oedema
Photophobia
Visual disturbance

Ocular Side-effects-Notes

Transient burning on instillation is common, whereas other side effects are rare and difficult to differentiate from the condition for which the drug is used.

General Side-effects

Dry mouth
Taste disturbance
Nasal irritation
Headache
Itching

General Side effects-Notes

General side effects are uncommon (<1:100).

Dose

For adults & children (12 years and over): one drop should be instilled into each affected eye twice daily. Duration of treatment should not exceed 8 weeks.

Storage

Store below 25ºC.

Eye Nutrients

Legal Classification

Unlicensed: For use and supply by all optometrists.

Drug Type

Nutritional supplements.

Classification

Vitamins and minerals.

Preparations Available

Equavision: (Equazen)
Eye Essentials: (Vitamin Health)
ICaps: (Alcon)
Macusan: (Butterflies Healthcare)
Macusan Plus: (Butterflies Healthcare)
Macushield: (Macuvision Europe)
Nutrof Total (Spectrum Thea)
Ocuvite Lutein: (Bausch and Lomb)
Ocuvite Complete: (Bausch and Lomb)
PreserVision Original: (Bausch and Lomb)
PreserVision Lutein: (Bausch and Lomb)
Visionace: (Vitabiotics)
Visionace with Omega 3 : (Vitabiotics)
VisiVite Original Formula: (Vitamin Science)
Visivite Smokers Formula: (Vitamin Science)
Viteyes Advanced: (Vitamin Health)
Viteyes Advanced Beta-Carotene Free: (Vitamin Health)
Viteyes Omega 3: (Vitamin Health)
Viteyes Original: (Vitamin Health)
Viteyes Original Plus Lutein: (Vitamin Health)
Viteyes Plus Lutein Beta-Carotene Free: (Vitamin Health)

Indications

Maintenance of eye health. Management of patients with age-related macular degeneration (limited support for the use of certain nutritional supplements in the management of patients with ARMD is provided by the Age-related Eye Disease Study (AREDS) http://www.nei.nih.gov/amd/summary.asp

Contraindications

Products containing beta-carotene (as vitamin A) should not be used by past or current smokers (beta-carotene has been found to increase the risk of lung cancer in smokers).
Copper should be avoided in patients with biliary tract obstruction or Wilsons disease.

Cautions

The risks of high dose nutritional supplements are unknown.
Vitamin E has been associated with an increased risk of heart failure in people with vascular disease or diabetes.
High doses of vitamin A can increase the risk of osteoporosis in women.

Pregnancy and Lactation

It is not advisable to take high dose multivitamins and minerals in pregnancy or during lactation.

Interactions

The anticoagulant properties of warfarin can be altered by high doses of vitamin A, C and E. Zinc decreases the absorption of tetracyclines and fluoroquinolones. Concurrent use of isotretinoin may increase the risk of vitamin A toxicity.

Ocular Side Effects

None reported.

General Side Effects

Nausea
Gastrointestinal disturbance

General Side Effects-Notes

The Age-related Eye Disease Study (AREDS) addressed the issue of safety of the preparation used. Yellowing of the skin and self-reported anaemia were noted slightly more often in patients taking multivitamins (with or without zinc) compared to placebo. There is little available data on the long-term safety of these products,

Dose

Not recommended in children.
Dosing for individual products is given in the Table.

Storage

Store below 25ºC.

Fluorescein Sodium

Legal Classification

P: For use and supply by all optometrists.

Available Preparations

Single Use (Preservative-free):
Fluorets: paper strips impregnated with approximately 1mg of sodium fluorescein (Chauvin)

Minims Fluorescein: eyedrops, 1% fluorescein sodium (Chauvin)
Minims Fluorescein: eyedrops, 2% fluorescein sodium (Chauvin)

Drug Type

Ocular diagnostic preparation.

Classification

Diagnostic stain.

Indications

As a diagnostic stain for the detection of lesions and foreign bodies. Fluorescein is also used for Goldmann applanation tonometry and in the fitting of rigid contact lenses.

Contraindications

Hypersensitivity to fluorescein or any component of the preparation. Fluorescein is able to penetrate soft contact lenses and therefore should not be used when soft contact lenses are worn.

Cautions

Special care should be taken to avoid microbial contamination. *Pseudomonas aeruginosa* grows well in fluorescein solutions. Each *Minims* unit should be discarded after a single use.

Pregnancy and Lactation

Pregnancy risk category B. There are no adequate and well-controlled studies of fluorescein in pregnant woman. Animal studies have shown that fluorescein crosses the placental barrier. Fluorescein should therefore be used with caution during pregnancy, and only if the expected benefit to the mother is greater than any possible risk to the foetus. Although fluorescein is excreted in breast milk it is generally considered safe to use in nursing mothers.

Interactions

None known.

Ocular Side Effects

Transient blurring.

General Side Effects

None.

Dose

Adults & children (1 month and over). One *Fluoret* moistened with tear fluid, sterile water or sterile ophthalmic solution applied topically to the eye should be sufficient to provide adequate corneal staining. For eyedrops, a single drop of 1 or 2% sodium fluorescein is usually sufficient for most indications.

Storage

Store below 25ºC.

Fluorometholone

Legal Classification

POM: May be used and prescribed by independent prescribing optometrists.

Available Preparations

FML: eye drops, 0.1% fluorometholone, 1.4% PVA (*Liquifilm)* (Allergan)

Drug type

Anti-inflammatory.

Classification

Corticosteroid.

Indications/Use

Fluorometholone is indicated in the treatment of corticosteroid-responsive inflammation of the conjunctiva, cornea and anterior segment. See Clinical Management Guidelines on Pinguecula, Pterygium and Episcleritis.

Contraindications

Hypersensitivity to fluorometholone or any component of the preparation. Fluorometholone is contraindicated in viral diseases of the cornea and conjunctiva, fungal diseases of the eye or other infectious diseases where it may mask infection or enhance an existing infection.

Cautions

Fluorometholone, as with other corticosteroids, can cause ocular hypertension and should be used with caution in patients with glaucoma (see Clinical Management Guideline on Steroid Glaucoma).
Prolonged use of corticosteroids may suppress host immune responses and increase the possibility of secondary ocular infection.
In diseases causing thinning of the cornea or sclera, corticosteroids have been associated with perforations.
Contact lenses should not be worn during treatment. Contains benzalkonium chloride as a preservative, which may be accumulate in soft lenses and cause irritation.

Pregnancy and Lactation

Pregnancy risk category C. Safety of fluorometholone during pregnancy has not been established. Therefore, the use of fluorometholone during pregnancy requires that the

benefits be weighed against the potential risks to the foetus. It is not known if fluorometholone is excreted in human breast milk. Caution should be exercised when prescribing to breast-feeding women.

Interactions

There are no reported interactions. In the case of concomitant use of another topical eye preparation, allow 5-10 minutes between applications of each preparation.

Ocular Side Effects

Raised intra-ocular pressure
Posterior sub-capsular cataract formation
Secondary ocular infection
Perforation of the globe

Ocular Side-effects-Notes

The likelihood of ocular hypertension is reduced compared to other corticosteroids e.g. prednisolone. Ocular signs and symptoms similar to the underlying ocular disease being treated were reported in clinical trials e.g. ocular discomfort, epiphora, foreign body sensation, hyperaemia and itching.

General Side-effects

Local side effects of steroid therapy e.g. skin atrophy, striae and telangiectasia may affect facial skin.

Dose

For adults & children (2 years and over): 1-2 drops should be instilled 2-4 times daily. During the initial 24-48 hours the dose can be increased to 2 drops every hour.

Storage

Store below 25ºC.

Flurbiprofen

Legal Classification

POM: May be used and prescribed by independent prescribing optometrists.

Available Preparations

Flurbiprofen: tablets, 50mg flurbiprofen (Non-proprietary)
Flurbiprofen: tablets, 100mg flurbiprofen (Non-proprietary)
Froben: tablets, 50mg flurbiprofen (Abbott)
Froben: tablets, 100mg flurbiprofen (Abbott)

Modified release
Froben SR: tablets, 200mg flurbiprofen (Abbott)

Drug Type

Anti-inflammatory.

Classification

Non-steroidal anti-inflammatory drug (NSAID).

Indications

Flurbiprofen is licensed for the treatment of inflammatory musculoskeletal and joint diseases. It is also licensed for the relief of mild to moderate pain. Flurbiprofen has been used off- licence for the treatment of inflammatory diseases of the anterior eye. See Clinical Management Guideline on Episcleritis.

Contraindications

Hypersensitivity to flurbiprofen or any component of the preparation. There is the potential of cross sensitization with aspirin or other NSAIDs and flurbiprofen is not indicated in individuals who have previously demonstrated sensitivity to these drugs. Flurbiprofen should not be used in patients with a history of gastrointestinal bleeding or perforation, patients with ulcerative colitis or Crohn's disease or in patients with severe heart failure, hepatic failure or renal failure.

Cautions

The elderly are at increased risk of NSAID-induced adverse reactions. Particular caution is required in patients with renal, cardiac or hepatic impairment. The dose should be the lowest effective dose for the shortest duration. Caution is required if flurbiprofen is

administered to patients suffering from or with a previous history of asthma or bleeding disorders.

Pregnancy and Lactation

Pregnancy risk category C. There have been reports of NSAID toxicity during the early stages of pregnancy in animal studies. In the third trimester, flurbiprofen can expose the foetus to cardiopulmonary toxicity and renal dysfunction. Most manufacturers therefore recommend that flurbiprofen should not be used during pregnancy. NSAIDs pass into breast milk in very low levels and should be avoided in nursing mothers.

Interactions

Should not be used with other NSAIDs. NSAIDs potentiate the anti-coagulant effect of warfarin. NSAIDs reduce the effects of diuretics and other anti-hypertensive drugs. NSAIDs can increase the risk of convulsions with quinolone antibiotics.

Ocular Side Effects

Non-specific visual disturbance.

Ocular Side Effects-Notes

Ocular side effects are rare and have generally been described in patients taking high doses.

General Side Effects

Abdominal pain, nausea and dyspepsia
Peptic ulcer and gastro-intestinal haemorrhage.
Hypersensitivity reactions
Oedema, hypertension and cardiac failure

General Side effects-Notes

Gastrointestinal disorders are the most commonly reported side effects.

Dose

For the treatment of episcleritis
Adults & children (12 years and over): 100mg daily in 2 divided doses with or after food. Total daily dose may increase to 300mg in divided doses.

Storage

Store below 25ºC.

Flurbiprofen Sodium

Legal Classification

POM: May be used and prescribed by optometrist independent prescribers.

Available Preparations

Ocufen: eye drops, single dose units containing 0.03% flurbiprofen sodium (Allergan)

Drug type

Anti-inflammatory.

Classification

Non-steroidal anti-inflammatory drug (NSAID).

Indications/Use

Flurbiprofen is indicated for the inhibition of intra-operative miosis and reduction of inflammation following ocular surgery. It is also used off-licence for the treatment of inflammatory disorders of the anterior segment. See Clinical Management Guideline on Episcleritis.

Contraindications

Hypersensitivity to flurbiprofen or any component of the preparation. There is the potential of cross sensitization with aspirin or other NSAIDs and flurbiprofen is not indicated in individuals who have previously demonstrated sensitivity to these drugs.

Cautions

Flurbiprofen should be used with caution in patients with known bleeding tendencies or patients with a history of peptic ulceration. Wound healing may be delayed with flurbiprofen.

Pregnancy and Lactation

Pregnancy risk category C. Safety of flurbiprofen during pregnancy has not been established. Therefore, the use of flurbiprofen during pregnancy requires that the benefits be weighed against the potential risks to the foetus. Flurbiprofen is excreted in human breast milk at low levels. Caution should be exercised when prescribing to breast-feeding women.

Interactions

There are no reported interactions. In the case of concomitant use of another topical eye preparation, allow 5-10 minutes between applications of each preparation.

Ocular Side Effects

Transient burning and singing on instillation

Ocular Side-effects-Notes

Transient burning on instillation is very common.

General Side-effects

Headache

Dose

Adults: one drop should be instilled 4 times daily for at least a week. Not licensed for use in children.

Storage

Store below 25ºC.

Fusidic acid

Legal Classification

POM: For use and supply by all optometrists. May be prescribed by independent prescribing optometrists.

Available Preparations

Fucithalmic: viscous gel,1% fusidic acid (Leo)

Drug type

Anti-infective.

Classification

Anti-bacterial.

Indications/Use

Fusidic acid is indicated for the topical treatment of bacterial conjunctivitis where the organism is known to be sensitive to the antibiotic. Fusidic acid is particularly active against *staphylococcus* organisms. See Clinical Management Guideline on Conjunctivitis (Bacterial).

Contraindications

Hypersensitivity to fusidic acid or any component of the preparation.

Cautions

Should be used as second line therapy for bacterial conjunctivitis due to the risk of developing staphylococcal resistance.
Contact lenses should not be worn during treatment. Contains benzalkonium chloride as a preservative, which may accumulate in soft lenses and cause irritation.

Pregnancy and Lactation

Pregnancy risk category C. Limited clinical data on exposed pregnancies is available, and animal studies and many years of clinical experience with systemic and topical fusidic acid suggest that fusidic acid is devoid of teratogenic effect. Consequently any risk to the foetus is unlikely using the very low doses of fusidic acid applied topically in an ophthalmic preparation. Can be administered during pregnancy if considered necessary.
No effects on the infant are anticipated since the systemic exposure of the breastfeeding woman to fusidic acid is negligible. Topical fusidic acid can be used during breastfeeding.

Interactions

There are no reported interactions. In the case of concomitant use of another topical eye preparation, allow 5-10 minutes between applications of each preparation.

Ocular Side Effects

Transient burning
Transient stinging
Transient blurring

Ocular Side-effects-Notes

Transient itching, burning and stinging after application (in approx. 3% of patients). Hypersensitivity reactions may rarely occur characterized by urticaria (localized or generalized).

General Side-effects

None reported.

Dose

For adults & children (1 month and over): One drop to be instilled into the eye twice daily. Treatment should be continued for at least 48 hours after the eye returns to normal.

Storage

Store below 25ºC.

Homatropine Hydrobromide

Legal Classification

POM: For use and supply by additional supply optometrists. May be used and prescribed by independent prescribing optometrists.

Available Preparations

Homatropine: eyedrops, 1% homatropine hydrobromide (non-proprietary)

Drug Type

Mydriatic and cycloplegic.

Classification

Antimuscarinic.

Indications

Cycloplegic refraction. Also used for dilating the pupil in anterior uveitis, the alleviation of ciliary spasm following corneal abrasion and for penalisation therapy in amblyopia. See Clinical Management Guidelines on Corneal Abrasion and Anterior Uveitis.

Contraindications

Hypersensitivity to homatropine or any component of the preparation.
Contraindicated in patients with confirmed or suspected narrow angle glaucoma as an acute attack may be precipitated.

Cautions

Use with caution in patients at risk of systemic effects e.g. neonates, debilitated or elderly patients or patients with Downs Syndrome. Children with brain damage may also demonstrate a hyper-reactive response to homatropine. Systemic absorption may be reduced by compressing the lacrimal sac at the medial canthus during, and for 2-3 mins after instillation.
Soft contact lenses should not be worn during treatment. Contains benzalkonium chloride as a preservative, which may accumulate in soft lenses and cause irritation.

Pregnancy and Lactation

Pregnancy risk category C. Safety of homatropine for use in pregnancy has not been established. Homatropine passes into breast milk in small amounts and may cause anti-cholinergic effects in babies of nursing mothers.

Interactions

The effect of antimuscarinic agents may be enhanced by the concomitant administration of other drugs with antimuscarinic properties such as amantadine, some anti-histamines, butyrophenones, phenothiazines and tricyclic anti-depressants. In the case of concomitant use of another topical eye preparation, allow 5-10 minutes between applications of each preparation.

Ocular Side Effects

Transient stinging
Transient blurring
Photophobia
Conjunctival hyperaemia
Conjunctival oedema
Raised intra-ocular pressure

Ocular Side Effects-Notes

Hypersensitivity reactions may rarely occur, characterised by an allergic lid reaction, hyperaemia and follicular conjunctivitis.

General Side Effects

Dry mouth
Dry skin
Flushing
Increased body temperature
Tachycardia
CNS effects

General Side effects-Notes

Anticholinergic effects e.g. dry mouth, flushing etc. are more likely to occur in infants and children, although reduced likelihood compared to atropine. CNS effects are rare (restlessness, hallucinations).

Dose

Not recommended in children <3 months.

Adults & children (3 months and over):
For cycloplegic refraction: use 1 drop 2 times per day for 1-3 days before refraction.
For uveitis: use 1 drop 1-2 times per day.
For alleviation of ciliary spasm: use 1 drop every 3-4 hours.

Storage

Store below 25ºC. Protect from light.

Sodium Hyaluronate

Legal Classification

CE: For use and supply by all optometrists.

Available Preparations

Avizor Moisture Drops: 0.1% sodium hyaluronate (Avizor)
Aquify Comfort Drops: eyedrops, 5% sodium hyaluronate (CIBA Vision)
Blink Contacts: eyedrops, 0.15% sodium hyaluronate (AMO)
Blink Intensive Tears: eyedrops, 0.2% sodium hyaluronate, 0.25% PEG400 (AMO)
Optrex Dry Eye Drops: eyedrops, 0.15% sodium hyaluronate (Crookes Healthcare)
Oxyal: eyedrops, 0.15% sodium hyaluronate (Kestrel)
Rohto Dry Eyes Relief: eyedrops, 0.2% Hyaluronic Acid & Tamarind Seed Polysaccharide (Metholatum)
Vismed Light: 0.1% sodium hyaluronate (TRB Chemica)

Multidose (Preservative-free eyedrops):
Hyabak: 0.15% sodium hyaluronate (Spectrum Thea)
Hycosan: 0.1% sodium hyaluronate (Bausch & Lomb)
Hycosan Plus: 0.1% Sodium Hyaluronate & 2.0% Dexapanthenol (Vitamin B5) (Bausch & Lomb)
Hylo-Tear: 0.1% sodium hyaluronate (Scope Ophthalmics)
Hylo-Forte: 0.2% sodium hyaluronate (Scope Ophthalmics)
Lumecare Extra Gentle Tear Drops: 0.15% sodium hyaluronate (Lumecare)
Vismed Multi: 0.18% sodium hyaluronate (TRB Chemica)

Single Use (Preservative-free):
Avizor Moisture Drops: 0.1% sodium hyaluronate (Avizor)
Blink Contacts: eyedrops, 0.15% sodium hyaluronate (AMO)
Blink Intensive Tears: eyedrops, 0.2% sodium hyaluronate, 0.25% PEG 400 (AMO)
Clinitas Soothe: eyedrops, 0.4% sodium hyaluronate (Altacor)
Hyal drop: eyedrops, 0.2% sodium hyaluronate (Bausch & Lomb)
Libristil: eyedrops,0.15% sodium hyaluronate (Moorfields Pharmaceuticals)
Ocusan: eyedrops, 0.2% sodium hyaluronate (Agepha)
Optrex Dry Eye Drops Singles: 0.2% sodium hylauronate (Crookes Healthcare)
Rohto Dry Eyes Relief: eyedrops, 0.2% Hyaluronic Acid & Tamarind Seed Polysaccharide (Metholatum)
Vismed:: eyedrops, 0.3% sodium hyaluronate (TRB Chemica)
Vismed Single Dose: eyedrops, 0.18% sodium hyaluronate (TRB Chemica)
Vislube: eyedrops, 0.18% sodium hyaluronate (TRB Chemica)

Drug Type

Artificial tears/ Ocular lubricants.

Classification

Artificial tears.

Indications

Tear substitute for the treatment of dry eye. See Clinical Management Guideline on Tear Deficiency.

Contraindications

Hypersensitivity to sodium hyaluronate or any component of the preparation.

Cautions

Some multidose preparations contain preservatives (benzalkonium chloride or cetrimide) which may accumulate in soft contact lenses and cause irritation. Consider single use (unpreserved) preparations in soft lens wearers. Consult preservative tables for contact lens compatibility.

Pregnancy and Lactation

Pregnancy risk category C. Although there are no adequate and well-controlled studies of hyaluronic acid in pregnancy or lactation, hyaluronic acid is a natural product and therefore no special precautions are required for its use in pregnancy and lactation.

Interactions

There are no reported interactions. In the case of concomitant use of another topical eye preparation, allow 5-10 minutes between applications of each preparation.

Ocular Side Effects

Transient blurring
Transient irritation

Ocular Side Effects-Notes

There have been case reports of deep calcium deposition in the cornea in patients with ocular surface disorders and prolonged use of multidose preparations containing high phosphate levels.

General Side Effects

None

Dose

Adults & children (12 years and over). Apply 1 or 2 drops three to four times per day or as required.

Storage

Store below 25ºC.

Hydroxyethylcellulose

Legal Classification

P: For use and supply by all optometrists.

Available Preparations

Single Use (Preservative-free):
Minims Artificial Tears: eyedrops, 0.44% hydroxyethylcellulose (Bausch & Lomb)

Drug Type

Artificial tears/ Ocular lubricants.

Classification

Artificial tears.

Indications

Tear substitute for the treatment of dry eye. See Clinical Management Guideline on Tear Deficiency.

Contraindications

Hypersensitivity to hydroxyethylcellulose or any component of the preparation.

Cautions

None.

Pregnancy and Lactation

Pregnancy risk category C. There are no adequate and well-controlled studies of hydroxyethylcellulose in pregnant woman. However, topical application is not thought to pose a significant risk. Similarly, the possibility of secretion into breast milk is low.

Interactions

There are no reported interactions. In the case of concomitant use of another topical eye preparation, allow 5-10 minutes between applications of each preparation.

Ocular Side Effects

Transient blurring

General Side Effects

None

Dose

Adults & children (12 years and over). Apply 1 or 2 drops three to four times per day or as required.

Storage

Store below 25ºC.

Hypromellose

Legal Classification

P: For use and supply by all optometrists.
CE: For use and supply by all optometrists

Available Preparations

P
Hypromellose: eyedrops, 0.3% hypromellose (Non-proprietary)
Artelac: eyedrops, 0.32% hypromellose, 0.1% dextran 70 (Pharma-Global))
Isopto Alkaline: eyedrops, 1% hypromellose (Alcon)
Isopto Plain: eyedrops, 0.5% hypromellose (Alcon)
Tears Naturale: eyedrops, 0.3% hypromellose, 0.1% dextran 70 (Alcon)

Single Use (Preservative-free):
Hypromellose: eyedrops, 0.3% hypromellose (Non-proprietary)
Artelac SDU: eye drops, 0.32% hypromellose (Pharma-Global)
Tears Naturale Single Dose: eyedrops, 0.3% hypromellose, 0.1% dextran 70 (Alcon)

CE
Single Use (Preservative-free):
Hydromoor: eyedrops, 0.3% hypromellose (Moorfields Pharmaceuticals)
Lumecare Preservative Free Tear Drops: eyedrops, 0.3% hypromellose (Medicom)

Drug Type

Artificial tears/ Ocular lubricants. See Clinical Management Guideline on Tear Deficiency.

Classification

Artificial tears.

Indications

Tear substitute for the treatment of dry eye.

Contraindications

Hypersensitivity to hypromellose or any component of the preparation.

Cautions

Multidose preparations contain benzalkonium chloride as a preservative, which may accumulate in soft contact lenses and cause irritation. Consider single use (unpreserved) preparations in soft lens wearers. Consult preservative tables for contact lens compatibility.

Pregnancy and Lactation

Pregnancy risk category C. There are no adequate and well-controlled studies of hypromellose in pregnant woman or lactation. Hypromellose should be used with caution in pregnant or nursing mothers, and only if the expected benefit is greater than any possible risk to the developing foetus or baby.

Interactions

There are no reported interactions. In the case of concomitant use of another topical eye preparation, allow 5-10 minutes between applications of each preparation.

Ocular Side Effects

Transient blurring
Transient stinging

General Side Effects

None

Dose

Adults & children (1 month and over). Apply 1 or 2 drops three to four times per day or as required.

Storage

Store below 25ºC.

Ibuprofen

Legal Classification

POM: May be used and prescribed by independent prescribing optometrists.
P: For use and supply by all optometrists.
GSL: For use and supply by all optometrists.

Available Preparations

POM:
Ibuprofen: tablets, 200, 400, 600mg ibuprofen (Non-proprietary)
Brufen: tablets, 200, 400, 600mg ibuprofen (Abbott)
Ibuprofen: oral suspension, 100mg ibuprofen per 5ml dose (Non-proprietary)

P and GSL (GSL contain no more than 16 tablets):
Ibuprofen: tablets, 200mg ibuprofen (Non-proprietary)
Ibuprofen: tablets, 400mg ibuprofen (Non-proprietary)
Anadin Ibuprofen: tablets, 200mg ibuprofen (Wyeth Consumer Healthcare)
Anadin Ultra Double Strength: tablets, 400mg (Wyeth Consumer Healthcare)
Cuprofen: tablets, 200mg ibuprofen (SSL International)
Cuprofen Maximum Strength: tablets 400mg ibuprofen
Nurofen: tablets, 200mg ibuprofen (Crookes Healthcare Ltd)

Combination products:
Cuprofen Plus: tablets, 200mg ibuprofen and 12.8mg codeine phosphate (SSL International)
Nurofen Plus: tablets, 200mg ibuprofen and 12.8mg codeine phosphate (Crookes Healthcare Ltd)

Preparations for children:
P and GSL (GSL no more than 100ml):
Calprofen Ibuprofen Suspension : oral suspension, 100mg ibuprofen per 5ml dose (Mc Neil Products Ltd)
Cuprofen for Children: 100mg ibuprofen per 5ml dose (SSL International)
Nurofen for Children: oral suspension, 100mg ibuprofen per 5ml dose (Crookes Healthcare)

Drug Type

Non-opioid analgesics.

Classification

Non-steroidal anti-inflammatory analgesic.

Indications

Mild to moderate pain from a variety of causes.

Contraindications

Ibuprofen should be avoided in patients with gastric ulcers or a history of gastric problems and patients with a history of bronchospasm, rhinitis, urticaria, particularly associated with therapy with aspirin or other non-steroidal anti-inflammatory drugs.

Cautions

The elderly are at increased risk of NSAID-induced adverse reactions. Particular caution is required in patients with renal or hepatic impairment. The dose should be as low as possible.

Pregnancy and Lactation

Pregnancy risk category B. Most manufacturers recommend that ibuprofen should not be used during pregnancy. Ibuprofen passes into breast milk in very low levels - less than 0.6% of the maternal dose. It is also frequently given directly to infants to reduce fever. It is therefore considered safe to be used in nursing mothers.

Interactions

Should not be used with other NSAIDs. Should be used with caution in patients taking anticoagulants, diuretics, antihypertensives, lithium, methotrexate or zidovudine.

Ocular Side Effects

Transient blurring
Refractive changes
Diplopia
Dry eyes
Photophobia
Colour vision disturbances

Ocular Side Effects-Notes

Ocular side effects are rare. Transient blurred vision is the most common side effect. Other well documented adverse reactions include: refractive changes, diplopia, dry eyes, photophobia and colour vision disturbances.

General Side Effects

Abdominal pain, nausea and dyspepsia
Peptic ulcer and gastro-intestinal haemorrhage.
Thrombocytopenia.
Headache
Dizziness
Hearing disturbance.

General Side effects-Notes

Dyspepsia is relatively common. Other side effects are rare. Hypersensitivity reactions have been reported following treatment with ibuprofen. These may consist of (a) non-specific allergic reactions and anaphylaxis, (b) respiratory tract reactivity e.g. aggravating asthma, bronchospasm or dyspnoea, or (c) assorted skin disorders, including rashes of various types.

Dose

Adults & children (12 years and over): Initial dose 2x 200mg tablets, then if necessary, 1 or 2 tablets every 4 hours (with or after food). Do not exceed 6 tablets daily (1200mg).

Child preparations:
Infants 3-6 months: one 2.5 ml dose may be taken 3 times in 24 hours.
Infants 6-12 months: one 2.5 ml dose may be taken 3-4 times in 24 hours.
Children 1-3 years: one 5 ml dose may be taken 3 times in 24 hours.
Children 4-6 years: one 7.5 ml (5ml+2.5ml) dose may be taken 3 times in 24 hours.
Children 7-12 years: one 10 ml dose (2 x 5 ml) may be taken 3 times in 24 hours.

Storage

Store below 25ºC.

Ketorolac Trometamol

Legal Classification

POM: May be used and prescribed by independent prescribing optometrists.

Available Preparations

Acular: eye drops, 0.5% ketorolac sodium (Allergan)

Drug type

Anti-inflammatory.

Classification

Non-steroidal anti-inflammatory drug (NSAID).

Indications/Use

Ketorolac is indicated for the prophylaxis and reduction of inflammation following ocular surgery. It is also used off-licence for the treatment of inflammatory disorders of the anterior segment. See Clinical Management Guidelines on Pinguecula, Pterygium and Episcleritis.

Contraindications

Hypersensitivity to ketorolac or any component of the preparation.
Topical NSAIDs should be used with caution in patients with complicated ocular surgeries, corneal denervation, corneal epithelial defects, diabetes mellitus, ocular surface diseases (e.g. dry eye syndrome), rheumatoid arthritis, or repeat ocular surgeries within a short period of time, as they may be at increased risk for corneal adverse events which may become sight threatening.
There is the potential of cross sensitization to aspirin or other NSAIDs and ketorolac is not indicated in individuals who have previously demonstrated sensitivity to these drugs.

Cautions

Ketorolac should be used with caution in patients with known bleeding tendencies or patients with a history of peptic ulceration. Concomitant use of ketorolac and corticosteroids should be avoided in patients susceptible to corneal epithelial breakdown. Contact lenses should not be worn during treatment. Contains benzalkonium chloride as a preservative, which may accumulate in soft lenses and cause irritation.

Pregnancy and Lactation

Pregnancy risk category C. Data is limited on the safety of ketorolac in pregnancy. Therefore, the use of ketorolac during pregnancy requires that the benefits be weighed against the potential risks to the foetus. Ketoroloc is excreted in human breast milk at low levels. Caution should be exercised when prescribing to breast-feeding women.

Interactions

There are no reported interactions. In the case of concomitant use of another topical eye preparation, allow 5-10 minutes between applications of each preparation.

Ocular Side Effects

Ocular irritation or burning
Superficial punctuate keratitis
Eye pain or stinging
Eyelid/ conjunctival oedema
Conjunctival/ocular hyperaemia
Itching
Hypersensitivity reactions
Blurred vision
Corneal infiltrates
Dry eye
Increased lacrimation

Ocular Side-effects-Notes

Transient burning on instillation is very common, eye pain, lid/conjunctival oedema, itching and ocular hyperaemia are common, whereas other side effects are rare. Post-marketing reports of corneal damage with topical NSAIDs have been received, although generally in eyes receiving corticosteroids and with predisposing ocular morbidity.These events may be sight threatening. Patients with evidence of corneal epithelial breakdown should immediately discontinue use of topical NSAIDs and should be closely monitored for corneal health.

General Side-effects

Headache

Dose

Adults: one drop should be instilled 3 times daily for up to 3 weeks. Not licensed for use in children.

Storage

Store below 25ºC.

Ketotifen

Legal Classification

POM: For use and supply by additional supply optometrists. May be used and prescribed by independent prescribing optometrists.

Available Preparations

Zaditen: eye drops, 250 micrograms/ml ketotifen (as fumarate) (Novartis)

Drug Type

Anti-inflammatory.

Classification

Anti-histamine.

Indications

Treatment of seasonal allergic conjunctivitis. See Clinical Management Guideline on Conjunctivitis (Seasonal and Perennial).

Contraindications

Hypersensitivity to ketotifen or any component of the preparation.

Cautions

Contact lenses should not be worn during treatment. Preparation contains benzalkonium chloride as a preservative, which may accumulate in soft lenses and cause irritation.

Pregnancy and Lactation

Pregnancy risk category C. There are no adequate and well-controlled studies in pregnant woman. Should be used with caution during pregnancy, and only if the expected benefit to the mother is greater than any possible risk to the foetus or baby. Ketotifen has been identified in breast milk of animals following oral administration, however topical administration to humans is unlikely to produce detectable quantities in breast milk and therefore ketotifen can be used in nursing mothers.

Interactions

The use of systemic forms of ketotifen may potentiate the effect of CNS depressants, antihistamines and alcohol. Although this has not been observed with ketotifen eye drops, the possibility of such effects cannot be excluded.
In the case of concomitant use of another topical eye preparation, allow 5-10 minutes between each applications of each preparation.

Ocular Side Effects

Transient burning
Transient stinging
Transient blurring
Punctate keratitis
Pain
Dry eyes
Hypersensitivity reactions

Ocular Side Effects-Notes

Ocular adverse reactions are rare. Transient irritation and punctate keratitis occurs in 1-2%. Other adverse reactions occur in <1%.

General Side Effects

Headaches
Rhinitis
Rashes
Somnolence

General Side Effects-Notes

General side effects are rare (<1%).

Dose

Adult & children (3 years and over), apply 1 drop twice daily.

Storage

Store below 25°C.

Levocabastine

There are currently no preparations commercially available in the UK for this drug.

Lid Care Products

Legal Classification

CE: For use and supply by all optometrists.

Available Preparations

Blephasol: solution (preservative-free)(Spectrum Thea)
Blephaclean: sterile lid cleaning pads (Spectrum Thea)
Lid-Care: solution (Ciba)
Lid-Care: sterile lid cleaning pads (Ciba)
Supranettes: sterile lid cleaning pads (Alcon)

Drug Type

Lid Care Products

Classification

Lid Care Products

Indications

Eyelid margin hygiene e.g. in the management of blepharitis
See Clinical Management Guideline on Blepharitis.

Contraindications

Hypersensitivity to any component of the preparation.

Cautions

Do not instill solutions directly into the eyes

Pregnancy and Lactation

Pregnancy risk category C. There are no adequate and well-controlled studies of the components of lid care products in pregnant woman or lactation. However, there is minimal risk of systemic absorption during normal external use of lid care products.

Interactions

There are no reported interactions.

Ocular Side Effects

Transient stinging

General Side Effects

None

Dose

Adults & children (1 month and over). Rub cleaning pad/ wipe several times over the eyelid margins to remove any debris. Use a fresh pad/ wipe for each eye.

Storage

Store below 25ºC.

Lidocaine Hydrochloride (Lignocaine)

Legal Classification

POM: For use by all optometrists.

Available Preparations

Single Use (Preservative-free)
Minims Lidocaine and Fluorescein : eyedrops, 4% lidocaine hydrochloride, 0.25% fluorescein (Bausch & Lomb)

Drug Type

Local anaesthetic.

Classification

Amide-type local anaesthetic.

Indications

Lidocaine combined with fluorescein is used for the measurement of intraocular pressure by Goldmann applanation tonometry.

Contraindications

Hypersensitivity to lidocaine or fluorescein.

Cautions

The eye should be protected from foreign bodies and rubbing during the period of anaesthesia (up to 30 minutes). Ideally, the patient should not leave the practice until corneal sensation has returned.

Pregnancy and Lactation

Pregnancy risk category B. No well controlled clinical trials have been conducted in pregnancy and lactation. However, this combination has been used for many years without apparent ill-effects.

Interactions

None reported.

Ocular Side Effects

Transient stinging
Transient blurring
Punctate keratitis

Ocular Side Effects-Notes

Hypersensitivity reactions may rarely occur, characterised by allergic conjunctivitis and peri-orbital oedema.

General Side Effects

No reported general side effects.

Dose

Adults & children (3 months and over). One drop is sufficient to anaesthetise the surface of the eye to allow tonometry after one minute.

Storage

Store below 25°C. Protect from light.

Liquid Paraffin

Legal Classification

P: For use and supply by all optometrists.

Available Preparations

Lacri-Lube: eye ointment, 57.3% white soft paraffin, 42.5% liquid paraffin, 0.2% wool fat derivatives (Allergan)

Drug Type

Artificial tears/ Ocular lubricants.

Classification

Ocular lubricant.

Indications

Lubrication and protection of the eye in conditions such as exposure keratitis, decreased corneal sensitivity, recurrent corneal erosions and keratoconjunctivitis sicca. See Clinical Management Guidelines on Tear Deficiency, Recurrent Corneal Erosion, Ectropion, Entropion, Trichiasis, Facial Palsy.

Contraindications

Hypersensitivity to liquid paraffin or any component of the preparation.

Cautions

Contact lenses should be removed prior to instillation and should not be inserted for at least 30 minutes.

Pregnancy and Lactation

Pregnancy risk category C.The constituents of the available preparations have been used as pharmaceutical agents for many years with no untoward effects. No special precautions are therefore necessary for their use in pregnancy or lactation.

Interactions

There are no reported interactions. In the case of concomitant use of another topical eye preparation, allow 5-10 minutes between applications of each preparation.

Ocular Side Effects

Transient blurring
Transient stinging

Ocular Side Effects-Notes

Transient blurring lasting 1-15 minutes occurs following instillation. Hypersensitivy reactions can rarely occur.

General Side Effects

None

Dose

Adults & children (1 month and over). Apply a small amount to the affected eye(s) as required.

Storage

Store below 25ºC.

Lissamine Green

Legal Classification

CE: For use and supply by all optometrists.

Available Preparations

Lissamine Green Ophthalmic Strips: 1.5mg Lissamine Green per strip (Cyanacon/Ocusoft)

Drug Type

Ocular diagnostic preparation.

Classification

Diagnostic stain.

Indications

As a diagnostic stain. Lissamine Green stains the same degenerated conjunctival and corneal epithelial cells as rose bengal and can be considered a substitute in clinical practice.

Contraindications

Hypersensitivity to lissamine green or any component of the preparation. Do not use with soft contact lenses.

Cautions

None

Pregnancy and Lactation

Pregnancy risk category C. In the absence of any teratology studies, lissamine green is not recommended in pregnancy unless the therapeutic benefit exceeds the potential risk. It is not known whether lissamine green is secreted in breast milk. Therefore use with caution in nursing mothers.

Interactions

None known.

Ocular Side Effects

Transient blurring

Transient stinging

Ocular Side Effects-Notes

Staining of the eyelids in the case of overspill tearing following application.

General Side Effects

None

Dose

Adults & children. Moisten the lissamine green paper strip using 1 or 2 drops of sterile saline. Shake off excess fluid and apply to the conjunctival sac. Ask the patient to blink a few times.

Storage

Store below 25ºC.

Lodoxamide

Legal Classification

POM : For use and supply by additional supply optometrists. May be used and prescribed by optometrist independent prescribers.
P: For use and supply by all optometrists.

Available Preparations

POM:
Alomide: eyedrops, 0.1% lodoxamide (as trometamol) (Alcon)

P:
Alomide Allergy: eyedrops, 0.1% lodoxamide (Alcon)

Indications

Treatment of allergic conjunctivitis. See Clinical See Clinical Management Guidelines on Atopic keratoconjunctivitis, Vernal keratoconjunctivitis, Conjunctivitis (Acute allergic), Conjunctivitis- seasonal and perennial allergic and Contact lens-associated papillary conjunctivitis.

Drug type

Anti-inflammatory.

Classification

Mast cell stabilizer.

Contraindications

Hypersensitivity to lodoxamide or any component of the preparation.

Cautions

Contact lenses should not be worn during treatment. Preparation contains benzalkonium chloride as a preservative, which may accumulate in soft lenses and cause irritation.

Pregnancy and Lactation

Pregnancy risk category B. Reproduction studies with lodoxamide administered orally to animals in doses of many times greater than the ophthalmic dose produced no evidence of foetal toxicity. However, there are no adequate and well-controlled studies in pregnant women. Lodoxamide should therefore be used during pregnancy only if clearly needed. It is

not known whether lodoxamide is secreted in human milk and caution should be exercised when lodoxamide is administered to nursing mothers.

Interactions

There are no reported interactions. In the case of concomitant use of another topical eye preparation, allow 5-10 minutes between each applications of each preparation.

Ocular Side Effects

Transient burning
Transient stinging
Blurred vision
Lid margin crusting
Conjunctival hyperaemia
Itching
Tearing

Ocular Side Effects-Notes

Transient burning/stinging on instillation occurs in approx.13% of patients. Other adverse events occur in 1-5% of patients and are often difficult to distinguish from the symptoms of allergic conjunctivitis.

General Side Effects

Headaches
Dizziness
Nausea
Stomach discomfort
Flushing

General Side Effects-Notes

Headaches reported in 1-2% of patients. Other systemic side effects are rare (<1%).

Dose

Adults & children (4 years and over), apply 1 drop four times daily. Full effect may take several days to occur.

Storage.

Store below 25°C.

Loratadine

Legal Classification

P: For use and supply by all optometrists.
GSL: For use and supply by all optometrists.

Available Preparations

P and GSL (GSL, pack size 7 tablets or less):
Loratidine: tablets, 10mg loratidine (Non-proprietary)
Boots Non Drowsy Hayfever and Allergy Relief*: 10mg loratidine (Boots Company PLC)*
Boots Hayfever Relief All Day: 1mg/ml0mg loratidine (Boots Company PLC)
Clarytyn Allergy: tablets, 10mg loratidine (Schering-Plough Ltd)
Clarytyn Allergy Syrup: oral solution, 1mg/ml loratidine (Schering-Plough Ltd)

Drug Type

Anti-histamine.

Classification

Non-sedative antihistamine.

Indications

For the symptomatic relief of allergic rhinitis (hay fever), including ocular symptoms and allergic skin conditions such as urticaria. See Clinical Management Guideline on Conjunctivitis (Seasonal and Perennial).

Contraindications

Hypersensitivity to loratidine or any component of the preparation.

Cautions

Second generation antihistamines are less lipophilic and do not penetrate the blood-brain barrier to any significant extent. They are therefore less likely to cause centrally mediated effects e.g. drowsiness. However, approx. 6% of patients experience such effects and therefore patients need to be warned that loratadine may affect driving and other skilled tasks.
Use with caution in patients with renal or hepatic impairment.

Pregnancy and Lactation

Pregnancy risk category B: In animal studies, loratadine was not teratogenic in doses many times in excess of the maximum recommended human dose. However, there are no adequate and well-controlled studies in pregnant women and because animal studies are not always predictive of human response, loratadine should be used in pregnancy only if clearly needed. Loratadine has been reported to be excreted in human breast milk and therefore use of loratadine in nursing mothers is not recommended.

Interactions

Avoid excessive alcohol consumption.

Ocular Side Effects

Dry eyes
Punctate keratitis

Ocular Side Effects-Notes

Ocular side effects are rare.

General Side Effects

Drowsiness
Headache
Nervousness
Fatigue

General Side effects-Notes

General side effects are rare. Loratadine is associated with a much lower incidence of sedation than cetirizine or acrivastine.

Dose

Adults & children (12 years and over): One 10mg tablet once daily.
Children: 2-12 years <30Kg body weight 5ml (5mg) once daily >30Kg 10ml once daily.

Storage

Store below 25ºC.

Loteprednol Etabonate

Legal Classification

POM: May be used and prescribed by optometrist independent prescribers.

Available Preparations

Lotemax: eye drops, 0.5% loteprednol etabonate (Bausch and Lomb)

Drug type

Anti-inflammatory.

Classification

Corticosteroid.

Indications/Use

Loteprednol is indicated in the treatment of inflammation following ocular surgery. It is used off-licence for the treatment of inflammation of the conjunctiva, cornea or anterior segment. See Clinical Management Guidelines on Pterygium, Pinguecula and Episcleritis.

Contraindications

Hypersensitivity to loteprednol or any component of the preparation. Loteprednol is contraindicated in viral diseases of the cornea and conjunctiva, fungal diseases of the eye or other infectious diseases where it may mask infection or enhance an existing infection.

Cautions

Loteprednol, as with other corticosteroids, can cause ocular hypertension and should be used with caution in patients with glaucoma (see Clinical Management Guideline on Steroid Glaucoma).
Prolonged use of corticosteroids may suppress host immune responses and increase the possibility of secondary ocular infection.
In diseases causing thinning of the cornea or sclera, corticosteroids have been associated with perforations.
Contact lenses should not be worn during treatment. Contains benzalkonium chloride as a preservative, which may accumulate in soft lenses and cause irritation.

Pregnancy and Lactation

Pregnancy risk category C. Safety of loteprednol during pregnancy has not been established. Therefore, the use of loteprednol during pregnancy requires that the benefits be weighed

against the potential risks to the foetus. It is not known if loteprednol is excreted in human breast milk. Caution should be exercised when prescribing to breast-feeding women.

Interactions

Concurrent administration of cycloplegics may increase the risk of raised intra-ocular pressure. In the case of concomitant use of another topical eye preparation, allow 5-10 minutes between applications of each preparation.

Ocular Side Effects

Raised intra-ocular pressure
Posterior sub-capsular cataract formation
Secondary ocular infection
Perforation of the globe

Ocular Side-effects-Notes

The likelihood of ocular hypertension is reduced compared to other corticosteroids e.g. prednisolone. Ocular signs and symptoms similar to the underlying ocular disease being treated were reported with loteprednol in clinical trials e.g. ocular discomfort, epiphora, foreign body sensation, hyperaemia and itching.

General Side-effects

Headache
Taste disturbance
Dizziness
Paresthesia

General Side-effects-Notes

Headache is a common side effect, other side effects are rare.

Dose

Adults: 1-2 drops should be instilled 4 times daily. Duration of therapy should not exceed 2 weeks. Not licensed for use in children.

Storage

Store below 25ºC.

Minocycline

Legal Classification

POM: May be used and prescribed by optometrist independent prescribers.

Available Preparations

Minocycline: capsules, 50mg minocycline hydrochloride (Non-proprietary)
Minocycline: capsules, 100mg minocycline hydrochloride (Non-proprietary)
Aknemin: tablets, 50mg minocycline hydrochloride (Almirall)
Aknemin: tablets, 100mg minocycline hydrochloride (Almirall)

Modified Release
Acnamino MR: modified release capsules, 100mg minocycline hydrochloride (Meda)
Minocin MR: modified release capsules, 100mg minocycline hydrochloride (Lederle)
Sebomin MR: modified release capsules, 100mg minocycline hydrochloride (Actavis)

Drug Type

Anti-infective.

Classification

Anti-bacterial.

Indications

Minocycline has been found to be clinically effective in the treatment of a variety of infections caused by susceptible strains of Gram-positive and Gram-negative bacteria and certain other micro-organisms. It has a spectrum of activity similar to other tetracyclines but more active against *Staphylococcus aureus* (see Clinical Management Guidelines on Blepharitis and Ocular Rosacea).

Contraindications

Hypersensitivity to minocycline or component of the preparation. Hypersensitivity to any other members of the tetracycline family. Minocycline is contraindicated in children less than 12 years of age and in pregnant or nursing women.

Cautions

Use with caution in patients with hepatic impairment. May cause photosensitivity and patients should use skin protection, avoid prolonged exposure to sunlight and advised not use tanning equipment. A few cases of pregnancy have been attributed to the use of tetracycline antibiotics with oral contraceptives. Patients taking contraceptives containing

oestrogen should be warned that there is a possibility of contraceptive failure and advised to use alternative forms of contraception during treatment. Use with caution in patients with SLE or myasthenia gravis as tetracyclines may exacerbate these conditions.

Pregnancy and Lactation

Pregnancy risk category D: contraindicated in pregnancy. Animal studies have shown that tetracyclines cross the placenta and can cause toxicity to the foetus. Yellow-brown discolouration of the teeth and enamel hypoplasia can occur when drugs of the tetracycline family are administered after the first trimester of pregnancy. Tetracyclines are excreted into breast milk and therefore contraindicated in nursing mothers.

Interactions

Antacids and preparations containing aluminium, calcium, magnesium, zinc, bismuth or iron may decrease the absorption of minocycline. Tetracyclines decrease plasma prothrombin activity and a dose reduction in patients taking anticoagulants may be necessary. Tetracyclines may reduce the effect of oral contraceptives (see cautions).

Ocular Side Effects

Blurred vision
Field loss
Diplopia
Discoloration of the conjunctiva and lacrimal secretions

Ocular Side Effects-Notes

Ocular side effects are rare. Visual disturbance (blurred vision, field loss, diplopia) has been reported in association with benign intracranial hypertension.

General Side Effects

Gastrointestinal disturbances e.g. nausea, vomiting and diarrhoea
Discolouration of teeth and enamel hypoplasia (young children)
Abnormal bone growth (young children)
Headache
Photosensitivity
Dizziness and vertigo
Benign intracranial hypertension

General Side effects-Notes

Gastrointestinal disturbances are commonly reported. Dizziness and vertigo are more common in women. The presence of headache and visual disturbance may indicate benign intracranial hypertension (discontinue therapy).

Dose

For blepharitis and ocular rosacea: treatment may need to be continued for several weeks or months.

Adults: 1 x 50mg tablet daily (for 2 weeks) followed by 100mg daily for 3 months.
Contraindicated in children.

Storage

Store below 25ºC.

Nedocromil Sodium

Legal Classification

POM: For use and supply by additional supply optometrists. May be used and prescribed by independent prescribing optometrists.

Available Preparations

Rapitil: eyedrops, 2% nedocromil sodium (Sanofi-Aventis)

Drug type

Anti-inflammatory.

Classification

Mast cell stabilizer.

Indications

For the prevention, relief and treatment of allergic conjunctivitis, including seasonal allergic conjunctivitis, allergic conjunctivitis and vernal kerato-conjunctivitis. Treatment of allergic conjunctivitis.
See Clinical Management Guidelines on Atopic keratoconjunctivitis, Vernal keratoconjunctivitis, Conjunctivitis (Acute allergic), Conjunctivitis- seasonal and perennial allergic and Contact lens-associated papillary conjunctivitis.

Contraindications

Hypersensitivity to nedocromil or any constituent of the preparation.

Cautions

Contact lenses should not be worn during treatment. Preparation contains benzalkonium chloride as a preservative, which may accumulate in soft lenses and cause irritation.

Pregnancy and Lactation

Pregnancy risk category B. Animal studies have failed to reveal a hazard with nedocromil sodium. However, as with all medications caution should be exercised during pregnancy (particularly during the 1st trimester).
On the basis of its physico-chemical properties it is considered that only negligible amounts of nedocromil sodium may pass into human breast milk and there is no information to suggest that the use of nedocromil has any undesirable effects upon the baby.

Interactions

There are no reported interactions. In the case of concomitant use of another topical eye preparation, allow 5-10 minutes between applications of each preparation.

Ocular Side Effects

Transient stinging
Transient burning

Ocular Side Effects-Notes

Transient stinging and burning following instillation is the most common side effects (10-30%).

General Side Effects

Headaches
Distinctive taste

General Side Effects-Notes

Headache is the most commonly reported side effect (approximately 40% of patients). Distinctive taste sometimes reported.

Dose

Seasonal and perennial conjunctivitis: adults & children (6 years and over), apply 1 drop twice daily, increased if necessary to four times daily. Full effect may take several days to occur. Maximum of 12 weeks treatment for seasonal allergic conjunctivitis.

Vernal keratoconjunctivitis: adults & children (6 years and over), apply four times daily.

Storage

Store below 25°C, away from direct sunlight.

Ofloxacin

Legal Classification

POM: May be used and prescribed by optometrist independent prescribers.

Available Preparations

Exocin: eye drops, 0.3% ofloxacin (Allergan)

Drug type

Anti-infective.

Classification

Anti-bacterial.

Indications/Use

Ofloxacin is indicated for topical treatment of external ocular infections in adults and children caused by ofloxacin-sensitive organisms (see Clinical Management Guideline for Nasolacrimal duct obstruction).

Contraindications

Hypersensitivity to ofloxacin or any component of the preparation.

Cautions

Use with caution in patients exhibiting sensitivity to other quinolone antibiotics.
As with other antibiotics prolonged use may lead to the development of bacterial resistance.
Risk of corneal perforation when used to treat patients with corneal epithelial defects and ulcers.
Contains benzalkonium chloride as a preservative, which may accumulate in soft contact lenses and cause irritation. Manufacturer recommends that contact lenses should be removed before instillation and reinserted 15 minutes after administration.

Pregnancy and Lactation

Pregnancy risk category C. There are no adequate and well controlled studies in pregnant women. Systemic quinolones have caused arthropathy in animal studies. Therefore, the use of ofloxacin in pregnancy requires that the benefits be weighed against the potential risks to the foetus. Following systemic administration, ofloxacin has been detected in the milk of nursing mothers. The use of ofloxacin, while nursing, requires that the benefits be weighed against the potential risks to the nursing infant.

Interactions

There are no reported interactions. In the case of concomitant use of another topical eye preparation, allow 5-10 minutes between applications of each preparation.

Ocular Side Effects

Transient burning
Transient stinging
Transient hyperaemia

Ocular Side-effects-Notes

Transient ocular irritation (burning, stinging, redness, itching or photophobia) on instillation has been commonly reported.
Corneal precipitates have been reported during treatment with topical ophthalmic ofloxacin. However, a causal relationship has not been established.

General Side-effects

Nausea
Headache
Dizziness
Numbness

General Side effects-Notes

Very rarely headache, dizziness, numbness and nausea have been reported in clinical trials.
Stevens-Johnson syndrome has been reported in patients receiving topical ophthalmic ofloxacin, however, a causal relationship has not been established.

Dose

For adults & children (all ages): 1-2 drops to be instilled into the eye every 2-4 hours for the first 2 days and then 4 times daily. Treatment should not exceed 10 days.

Storage

Store below 25ºC.

Olopatadine

Legal Classification

POM: For use and supply by additional supply optometrists. May be use and prescribed by independent prescribing optometrists.

Available Preparations

Opatanol: eyedrops, 0.1% olopatadine (as hydrochloride) (Alcon)

Drug Type

Anti-inflammatory.

Classification

Anti-histamine.

Indications

Treatment of ocular signs and symptoms of seasonal allergic conjunctivitis. See Clinical Management Guideline on Conjunctivitis (Seasonal and Perennial).

Contraindications

Hypersensitivity to olopatadine or to any component of the preparation.

Cautions

Preparation contains benzalkonium chloride as a preservative, which may accumulate in soft lenses and cause irritation. Manufacturer recommends that an interval of 10-15 mins from instillation before contact lenses can be reinserted. The preparation should not be instilled while wearing contact lenses.

Pregnancy and Lactation

Pregnancy risk category C. Safety in pregnancy has not been established. Animal studies do not indicate direct or indirect harmful effects with respect to pregnancy. However, caution should be exercised when prescribing to pregnant women. Olopatadine has been detected in the milk of nursing rats following oral administration. It is not known whether topical administration to humans could result in sufficient systemic absorption to produce detectable quantities in human breast milk. Olopatadine is therefore not recommended for breast-feeding mothers.

Interactions

There are no reported interactions. In the case of concomitant use of another topical eye preparation, allow at least 10 minutes between each application.

Ocular Side Effects

Transient irritation
Eye pain
Dry eye
Keratitis
Itching
Photophobia
Conjunctival hyperaemia

Ocular Side Effects-Notes

In clinical trials side effects were experienced by 4.5% of patients. The most frequently reported treatment-related undesirable effect in clinical trials was eye pain with an incidence of 0.7%. Other adverse reactions are rare (0.1%).

General Side Effects

Headaches
Nasal dryness
Asthenia
Dizziness
Rhinitis
Hypersensitivity

General Side effects-Notes

Headache and nasal dryness were the most commonly reported general side effects (1-10%). Other general side effects are uncommon.

Dose

Adults & children (3 years and over), apply 1 drop twice daily. Maximum duration of treatment 4 months.

Storage

Store below 25°C.

Oxybuprocaine Hydrochloride (Benoxinate)

Legal Classification

POM: For use by all optometrists.

Available Preparations

Single Use (Preservative-free):
Minims Oxybuprocaine : eyedrops, 0.4% oxybuprocaine hydrochloride (Bausch & Lomb)

Drug Type

Local anaesthetic.

Classification

Ester-type local anaesthetic.

Indications

Ocular anaesthesia for short-term procedures e.g. Goldmann applanation tonometry, gonioscopy, minor surgery.

Contraindications

Hypersensitivity to oxybuprocaine or other ester-type anaesthetics.
In view of the immaturity of the enzyme system which metabolises the ester type local anaesthetics in premature babies, oxybuprocaine should be avoided in these patients.

Cautions

The eye should be protected from foreign bodies and rubbing during the period of anaesthesia (up to 30 minutes). Ideally the patient should not leave the practice until corneal sensation has returned.

Pregnancy and Lactation

Pregnancy risk category C. No well controlled clinical trials have been conducted in pregnancy and lactation. Oxybuprocaine should not be used unless considered essential by the clinician.

Interactions

None reported.

Ocular Side Effects

Transient stinging
Transient blurring
Punctate keratitis

Ocular Side Effects-Notes

Hypersensitivity reactions may rarely occur, characterised by allergic conjunctivitis and peri-orbital oedema.

General Side Effects

No reported general side effects.

Dose

Adults & children (1 month and over). One drop is sufficient to anaesthetise the surface of the eye to allow tonometry after one minute. Three drops at 90 second intervals provides sufficient anaesthesia for a foreign body to be removed from the corneal epithelium.

Storage

Store below 25°C. Protect from light.

Oxytetracycline

Legal Classification

POM: May be used and prescribed by optometrist independent prescribers.

Available Preparations

Oxytetracycline: tablets, 250mg oxytetracycline dihydrate (Non-proprietary)

Drug Type

Anti-infective.

Classification

Anti-bacterial.

Indications

Oxytetracycline has been found to be clinically effective in the treatment of a variety of infections caused by susceptible strains of Gram-positive and Gram-negative bacteria and certain other micro-organisms (see Clinical Management Guidelines on Blepharitis and Ocular Rosacea).

Contraindications

Hypersensitivity to oxytetracycline or component of the preparation. Hypersensitivity to any other members of the tetracycline family. Oxytetracycline is contraindicated in children less than 12 years of age and in pregnant or nursing women.

Cautions

Use with caution in patients with renal or hepatic impairment. May cause photosensitivity and patients should use skin protection, avoid prolonged exposure to sunlight and advised not use tanning equipment. A few cases of pregnancy have been attributed to the use of tetracycline antibiotics with oral contraceptives. Patients taking contraceptives containing oestrogen should be warned that there is a possibility of contraceptive failure and advised to use alternative forms of contraception during treatment. Use with caution in patients with SLE or myasthenia gravis as tetracyclines may exacerbate these conditions.

Pregnancy and Lactation

Pregnancy risk category D: contraindicated in pregnancy. Animal studies have shown that tetracyclines cross the placenta and can cause toxicity to the foetus. Yellow-brown discolouration of the teeth and enamel hypoplasia can occur when drugs of the tetracycline

family are administered after the first trimester of pregnancy. Tetracyclines are excreted into breast milk and therefore contraindicated in nursing mothers.

Interactions

Antacids and preparations containing aluminium, calcium, magnesium, zinc, bismuth or iron may decrease the absorption of oxytetracycline. Tetracyclines decrease plasma prothrombin activity and a dose reduction in patients taking anticoagulants may be necessary. Tetracyclines may reduce the effect of oral contraceptives (see cautions).

Ocular Side Effects

Blurred vision
Field loss
Diplopia
Discoloration of the conjunctiva and lacrimal secretions

Ocular Side Effects-Notes

Ocular side effects are rare. Visual disturbance (blurred vision, field loss, diplopia) has been reported in association with benign intracranial hypertension.

General Side Effects

Gastrointestinal disturbances e.g. nausea, vomiting and diarrhoea
Discolouration of teeth and enamel hyoplasia (young children)
Abnormal bone growth (young children)
Headache
Photosensitivity
Benign intracranial hypertension

General Side effects-Notes

Gastrointestinal disturbances are commonly reported. The presence of headache and visual disturbance may indicate benign intracranial hypertension (discontinue treatment).

Dose

For blepharitis and ocular rosacea: treatment may need to be continued for several weeks or months.
Adults: 2 x 250mg tablets twice daily.
Contraindicated in children.

Storage

Store below 25ºC.

Paracetamol

Legal Classification

POM: May be used and prescribed by independent prescribing optometrists.
P: For use and supply by all optometrists.
GSL: For use and supply by all optometrists.

Available Preparations

POM:
Paracetamol Tablets: 500mg paracetamol (Non-proprietary)
Panadol OA: tablets, 1g paracetamol (GSK)

Combination products:
Co-codamol: tablets, 8mg codeine phosphate, 500mg paracetamol (Non-proprietary)
Kapake: tablets, 15mg dihydrocodeine tartrate, 500mg paracetamol (Galen)
Co-codamol: tablets, 30mg codeine phosphate, 500mg paracetamol (Non-proprietary)

P and GSL (P. Pack size up to 32. GSL. Pack size 16 or less):
Paracetamol: tablets, 500mg paracetamol (Non-proprietary)
Anadin Paracetamol Tablets: 500mg paracetamol (Wyeth Consumer Healthcare)
Hedex: tablets, 500mg paracetamol (GSK Consumer Healthcare)
Hedex Extra: tablets, 500mg paracetamol (with caffeine) (GSK Consumer Healthcare)
Panadol Advance: tablets,500mg paracetamol (GSK Consumer Healthcare)
Panadol Extra: tablets 500mg paracetamol (with caffeine)(GSK Consumer Healthcare)
Panadol Soluble: effervescent tablets, 500mg paracetamol (GSK Consumer Healthcare)

Preparations for children:
Calpol Six Plus Suspension: 250mg per 5ml paracetamol (Mc Neil Products Ltd)
Calpol Sugar-free Infant Suspension: 120mg per 5ml paracetamol (Mc Neil Products Ltd)
Disprol Paracetamol Suspension: 120mg per 5ml paracetamol, sugar-free (Reckitt Benckister Healthcare)
Medised for children: 120mg per 5ml paracetamol (SSL International PLC)

Combination products:
Anadin Extra: tablets 200mg paracetamol, 300mg aspirin (Wyeth Consumer Healthcare))
Disprin Extra: tablets, 200mg paracetamol, 300mg aspirin (Reckitt Benckister Healthcare)
Panadol Ultra: tablets, 500mg paracetamol, 12.8mg codeine phosphate (GSK Consumer Health)
Solphadeine Plus: capsules, 500mg paracetamol, 8mg codeine phosphate (GSK Consumer Health)

Drug Type

Non-opioid analgesics.

Classification

Non-opioid analgesics and anti-pyrexic.

Indications

Mild to moderate pain from a variety of causes and the treatment of pyrexia.

Contraindications

Hypersensitivity to paracetamol or any component of the preparation.

Cautions

Paracetamol is a very safe drug at normal therapeutic dosages, however it is hepatotoxic in overdose. It is therefore extremely important to ensure that patients do not exceed the recommended dose and do not use more than one paracetamol-containing product at a time.
Care is advised in the administration of paracetamol to patients with severe renal or severe hepatic impairment.

Pregnancy and Lactation

Pregnancy risk category B. There is clinical and epidemiological evidence of safety of paracetamol in pregnancy and it is the preferred analgesic in pregnant women, if required. Paracetamol is excreted in breast milk but not in clinically significant amounts. Available published data do not contraindicate breast feeding.

Interactions

No significant interactions relating to short-term use.

Ocular Side Effects

None

General Side Effects

Hypersensitivity reactions
Hepatotoxicity

General Side effects-Notes

Side-effects are rare, but rashes, blood disorders (including thrombocytopenia, leucopenia, neutropenia) have been reported. Hepatotoxicity can occur in overdose and is often fatal.

Dose

Adults & children (12 years and over): 0.5-1g every 4-6 hours. Maximum daily dose 4g.

Children: 3-12 months 60-120mg, 1-5 years 120-250mg, 6-12 years 250-500mg, all 4-6 hourly to a maximum of 4 doses in 24 hours.

Storage

Store below 25ºC.

Paraffin, Yellow, Soft

Legal Classification

P: For use and supply by all optometrists.

Available Preparations

Simple Eye Ointment: eye ointment, 10% yellow soft paraffin 10% wool fat (Non-Proprietary)

Drug Type

Artificial tears/ Ocular lubricants.

Classification

Ocular lubricant.

Indications

Lubrication and protection of the eye in conditions such as exposure keratitis, decreased corneal sensitivity, recurrent corneal erosions and keratoconjunctivitis sicca. See Clinical Management Guidelines on Tear Deficiency, Recurrent Corneal Erosion, Ectropion, Entropion, Trichiasis and Facial Palsy.

Contraindications

Hypersensitivity to yellow soft paraffin or any component of the preparation.

Cautions

Contact lenses should be removed prior to instillation and should not be inserted for at least 30 minutes.

Pregnancy and Lactation

Pregnancy risk category C. The constituents of the available preparation have been used as pharmaceutical agents for many years with no untoward effects. No special precautions are therefore necessary for their use in pregnancy or lactation.

Interactions

There are no reported interactions. In the case of concomitant use of another topical eye preparation, allow 5-10 minutes between applications of each preparation.

Ocular Side Effects

Transient blurring
Transient stinging

Ocular Side Effects-Notes

Transient blurring lasting 1-15 minutes occurs following instillation. Hypersensitivity reactions can rarely occur.

General Side Effects

None

Dose

Adults & children (1 month and over). For recurrent erosion apply a small amount into the affected eye before bedtime.

Storage

Store below 25ºC.

Phenylephrine Hydrochloride

Legal Classification

P: For use and supply by all optometrists.

Available Preparations

Phenylephrine Hydrochloride: eyedrops, 10% phenylephrine hydrochloride (Non-proprietary)

Single Use (Preservative-free):
Minims Phenylephrine: eyedrops, 2.5% phenylephrine hydrochloride (Bausch & Lomb)
Minims Phenylephrine: eyedrops,10% phenylephrine hydrochloride (Bausch & Lomb)

Drug Type

Mydriatic and Cycloplegic.

Classification

Sympathomimetic.

Indications

Phenylephrine is a directly acting sympathomimetic agent used topically as a mydriatic for diagnostic or therapeutic procedures.

Contraindications

Hypersensitivity to phenylephrine or any other of component of the preparation. Contraindicated in patients with cardiac disease, hypertension, aneurysms, asthma, thyrotoxicosis, long-standing insulin-dependent diabetes mellitus and tachycardia; patients on monoamine oxidase inhibitors (MAOI), tricyclic anti-depressants and anti-hypertensive agents (including beta-blockers); patients with closed angle glaucoma and patients with a narrow angle (prone to glaucoma precipitated by mydriatics).

Cautions

To reduce the risk of precipitating an attack of narrow angle glaucoma, evaluate the anterior chamber angle before use. Corneal clouding may occur if phenylephrine 10% is instilled when the corneal epithelium has been denuded or damaged. Avoid 10% phenylephrine in children and the elderly.

Pregnancy and Lactation

Pregnancy risk category C. There is no evidence as to the drug's safety in human pregnancy and should only be used if considered essential by the clinician. Phenylephrine should only be used in pregnancy if the potential benefit outweighs the risk to the developing foetus. Safety in lactation has not been established and therefore should not be used in nursing mothers.

Interactions

Anti-hypertensive Agents: Topical phenylephrine should not be used as it may reverse the action of many anti-hypertensive agents with possible fatal consequences. Phenylephrine also interacts with monoamine oxidase Inhibitors, tricyclic anti-depressants, cardiac glycosides or quinidine (increased risk of cardiovascular events).
In the case of concomitant use of another topical eye preparation, allow 5-10 minutes between applications of each preparation.

Ocular Side Effects

Transient stinging
Transient blurring
Photophobia
Lid retraction
Conjunctival allergic reaction
Raised intraocular pressure
Punctate keratitis

Ocular Side Effects-Notes

Transient irritation on instillation, temporarily blurred vision and photophobia are the most common adverse reactions.

General Side Effects

Palpitations
Tachycardia
Cardiac arrhythmias
Hypertension
Headaches

General Side effects-Notes

Serious cardiovascular reactions including coronary artery spasm, ventricular arrhythmias and myocardial infarctions have occurred following topical use of 10% phenylephrine. These sometimes fatal reactions have usually occurred in patients with pre-existing cardiovascular disease.

Dose

Adults & children (2.5% strength, 3 months and over): apply 1 drop to each eye. If necessary, repeat dose once only, at least one hour after the first drop.

10% phenylephrine is contraindicated in children and the elderly (>65 years) because of the increased risk of systemic toxicity.

Storage

Store below 25ºC. Protect from light.

Pilocarpine

Legal Classification

POM: For use and supply by additional supply optometrists. May be used and prescribed by independent prescribing optometrists.

Available Preparations

Pilocarpine hydrochloride: eyedrops, 1%, 2%, 3% or 4% pilocarpine hydrochloride (non-proprietary)

Single Use (Preservative-free):
Minims Pilocarpine Nitrate: eyedrops, 2% pilocarpine nitrate (Bausch & Lomb)

Long Acting:
Pilogel: ophthalmic gel, 4% pilocarpine hydrochloride (Alcon)

Drug Type

Miotic.

Classification

Parasympathomimetic.

Indications

To overcome the action of the weaker sympathomimetic mydriatics. Emergency treatment of acute closed angle glaucoma. See Clinical Management Guideline on angle closure glaucoma.

Contraindications

Hypersensitivity to pilocarpine or any component of the preparation. Contraindicated in conditions where pupil constriction is undesirable e.g. anterior uveitis and some forms of secondary glaucoma.

Cautions

Systemic reactions rarely occur at normal doses. However, in the emergency treatment of acute closed-angle glaucoma the possibility of systemic reactions must be considered because of the higher doses given. Caution is particularly advised in patients with acute heart failure, bronchial asthma, peptic ulceration, hypertension, urinary tract obstruction and Parkinson's disease. Systemic absorption may be reduced by compressing the lacrimal sac at the medial canthus during, and for 2-3 mins after instillation of the drops.

Retinal detachments have been caused in susceptible individuals and those with pre-existing retinal disease, therefore, fundus examination is advised in all patients prior to the initiation of therapy
Contact lenses should not be worn during treatment. Multidose preparations contain benzalkonium chloride as a preservative, which may be accumulate in soft lenses and cause irritation.

Pregnancy and Lactation

Pregnancy risk category C. There are no adequate and well controlled studies in pregnant women. Therefore, the use of pilocarpine in pregnancy requires that the benefits be weighed against the potential risks to the foetus. It is not known whether pilocarpine is excreted in breast milk. It should therefore be used with caution in nursing mothers.

Interactions

There are no relevant interactions. In the case of concomitant use of another topical eye preparation, allow 5-10 minutes between applications of each preparation.

Ocular Side Effects

Transient burning
Transient stinging
Tearing
Induced myopia
Ciliary spasm
Conjunctival vascular congestion
Follicular conjunctivitis
Reduced acuity in low illumination
Retinal detachment

Ocular Side Effects-Notes

Induced myopia and ciliary spasm are common in younger patients. This should be borne in mind when considering the use of pilocarpine for the reversal of mydriasis.

General Side Effects

Headaches
Hypertension
Tachycardia
Bronchial spasm
Salivation
Sweating
Nausea

General Side effects-Notes

Systemic side effects are rare at normal doses but need to be considered when higher doses are given.

Dose

Adults & children (2 years and over). To induce miosis, 1 or 2 drops (2% or 4%) should be used. In cases of emergency treatment of acute narrow-angle glaucoma, 1 drop (4%) should be used every five minutes until miosis is achieved.
Children: 1 month-2 years. Use 0.5% or 1%.

Storage

Store below 25ºC. Protect from light.

Polymyxin B Sulphate

Legal Classification

POM: For use and supply by additional supply optometrists. May be used and prescribed by independent prescribing optometrists.

Available Preparations

Polyfax Ophthalmic Ointment: polymyxin B sulphate 10,000 international units (IU), bacitracin zinc 500 IU/g (Teva UK)
Polytrim: (No longer commercially available in the UK)

Drug type

Anti-infective.

Classification

Anti-bacterial.

Indications

Polymyxin B is a bacteriostatic antibiotic indicated for the treatment of bacterial infections of the eye and its adnexa, e.g. conjunctivitis, keratitis, corneal ulceration and ulcerative blepharitis. Also can be applied prophylactically following foreign body removal.
See Clinical Management Guidelines on Blepharitis and Foreign body (sub-tarsal)

Contraindications

Hypersensitivity to polymyxin B or any components of the preparation.

Cautions

Following significant systemic absorption polymyxin B sulphate and bacitracin zinc have nephrotoxic potential and polymixin B sulphate has neurotoxic potential. However, this is extremely unlikely following topical administration.
Contact lenses should not we worn during treatment. Contains benzalkonium chloride as a preservative, which may accumulate in soft lenses and cause irritation.

Pregnancy and Lactation

Pregnacy risk category C. Animal reproduction studies have not been conducted with polymyxin B sulphate or bacitracin. It is also not known whether bacitracin or polymyxin B can cause foetal harm when administered to a pregnant woman. Therefore, the use of polymyxin/bacitracin in pregnancy requires that the benefits be weighed against the

potential risks to the foetus. It is not known whether bacitracin or polymyxin B is excreted in human milk and it is not recommended that they are used in nursing mothers.

Interactions

Following significant systemic absorption, polymyxin B sulphate can intensify and prolong the respiratory depressant effects of neuromuscular blocking agents (skeletal muscle relaxants). However, this is extremely unlikely following topical administration.
In the case of concomitant use of another topical eye preparation, allow 5-10 minutes between application of each preparation.

Ocular Side Effects

Transient irritation
Itching.
Conjunctival erythema
Conjunctival oedema

Ocular Side Effects-Notes

Transient irritation on instillation may occur. Hypersensitivity reactions, causing itching, conjunctival erythema and odema occur rarely. Contact dermatitis has also been described affecting the eyelids and peri-orbital skin.

General Side Effects

None reported.

Dose

Adults & children (1 month and over). A thin film of ointment should be applied to the affected part or inside of the lower eyelid two or more times a day depending on the severity of the condition.
Treatment should be continued until at least two days after the eye has apparently recovered.

Storage

Store below 25^{o}C.

Povidone

Legal Classification

P: For use and supply by all optometrists.

Available Preparations

Avizor Comfort Drops: eyedrops, 1% Povidone (Avizor)

Single Use (Preservative-free):
Oculotect: eyedrops, 5% povidone (Novartis)

Drug Type

Artificial tears/ Ocular lubricants.

Classification

Artificial tears.

Indications

Treatment of dry eye or an unstable tear film. See Clinical Management Guidelines on Tear Deficiency.

Contraindications

Hypersensitivity to povidone or any component of the preparation.

Cautions

None.

Pregnancy and Lactation

Pregnancy risk category C. There are no adequate and well-controlled studies of povidone in pregnant woman or lactation. Povidone should be used with caution and only if the expected benefit to the mother is greater than any possible risk to the foetus or baby.

Interactions

There are no reported interactions. In the case of concomitant use of another topical eye preparation, allow 5-10 minutes between applications of each preparation.

Ocular Side Effects

Transient blurring
Transient stinging

General Side Effects

None

Dose

Adults & children (1 month and over). Apply 1or 2 drops four times per day or as required.

Storage

Store below 25ºC. Protect from light.

Prednisolone

Legal Classification

POM: May be used and prescribed by optometrist independent prescribers.

Available Preparations

Predsol: eye drops, 0.5% prednisolone sodium phosphate (UCB Pharma)
Pred Forte: eye drops, 1% prednisolone acetate (Allergan)

Single use
Minims Prednisolone Sodium Phosphate: eye drops, single dose units containing 0.5% prednisolone sodium phosphate (Bausch and Lomb)

Combination
Predsol N: eye drops, 0.5% prednisolone sodium phosphate with 0.5% neomycin sulphate (Celltech)

Drug type

Anti-inflammatory.

Classification

Corticosteroid.

Indications/Use

Prednisolone is indicated in the short-term treatment of corticosteroid-responsive inflammation of the conjunctiva, cornea and anterior segment. See Clinical Management Guidelines on Keratitis (Marginal) and Anterior Uveitis.

Contraindications

Hypersensitivity to prednisolone or any component of the preparation. Prednisolone is contraindicated in viral diseases of the cornea and conjunctiva, fungal diseases of the eye or other infectious diseases where it may mask infection or enhance an existing infection.

Cautions

Prednisolone, as with other corticosteroids, can cause ocular hypertension and should be used with caution in patients with glaucoma (see Clinical Management Guideline on Steroid Glaucoma).
Prolonged use of corticosteroids may suppress host immune responses and increase the possibility of secondary ocular infection.

In diseases causing thinning of the cornea or sclera, corticosteroids have been associated with perforations.
Contact lenses should not be worn during treatment. Contains benzalkonium chloride as a preservative, which may accumulate in soft lenses and cause irritation.

Pregnancy and Lactation

Pregnancy risk category C. Safety of prednisolone during pregnancy has not been established. Therefore, the use of prednisolone during pregnancy requires that the benefits be weighed against the potential risks to the foetus. It is not known if prednisolone is excreted in human breast milk. Caution should be exercised when prescribing to breast-feeding women.

Interactions

There are no reported interactions. In the case of concomitant use of another topical eye preparation, allow 5-10 minutes between applications of each preparation.

Ocular Side Effects

Blurred vision
Ocular discharge
Ocular pain
Foreign body sensation
Raised intra-ocular pressure
Posterior sub-capsular cataract formation
Secondary ocular infection
Perforation of the globe

Ocular Side-effects-Notes

In clinical trials the most frequently reported side effects were blurred vision (2.6%) and ocular discharge (2.2%). Ocular signs and symptoms similar to the underlying ocular disease being treated were reported in clinical trials e.g. ocular discomfort, epiphora, foreign body sensation, hyperaemia and itching.

General Side-effects

Headache
Hypotension
Rhinitis
Pharyngitis
Taste disturbance

General Side-effects-Notes

General side effects are rare. Local side effects of steroid therapy e.g. skin atrophy, striae and telangiectasia may affect facial skin.

Dose

For adults & children (2 years and over): 1-2 drops should be instilled every 1-2 hours until inflammation is controlled and then reduce frequency.

Storage

Store below 25ºC.

Propamidine Isetionate/ Dibromopropamidine Isetionate

Legal Classification

P: For use and supply by all optometrists.

Available Preparations

Brolene Eye Drops: 0.1% propamidine isetionate (Sanofi-Aventis)
Golden Eye Drops: 0.1% propamidine isetionate (Typharm)

Brolene Eye Ointment: 0.15% dibromopropamidine isetionate (Sanofi-Aventis)
Golden Eye Ointment: 0.15% dibromopropamidine isetionate (Typharm)

Drug type

Anti-infective.

Classification

Anti-bacterial.

Indications

Propamidine isetionate is an aromatic diamidine disinfectant, which is active against Gram +ve, but less active against Gram -ve bacteria. It may be used topically for the treatment of minor eye infections e.g. conjunctivitis and blepharitis. It also has antifungal and anti-amoebic properties.
See Clinical Management Guidelines on Conjunctivitis (Bacterial) and Blepharitis.

Contraindications

Hypersensitivity to propamidine/ dibromopropamidine or any component of the preparation.

Cautions

Contact lenses should not we worn during treatment. Eyedrop formulations contain benzalkonium chloride as a preservative, which may accumulate in soft lenses and cause irritation.

Pregnancy and Lactation

Pregnancy risk category C. There are no adequate and well controlled studies in pregnant women. Therefore, the use of propamidine (or dibromopropamidine) in pregnancy requires that the benefits be weighed against the potential risks to the foetus. It is not known

whether propamidine (or dibromopropamidine) is excreted in breast milk. It should therefore be used with caution in nursing mothers.

Interactions

There are no reported interactions. In the case of concomitant use of another topical eye preparation, allow at least 5-10 minutes between applications of each preparation.

Ocular Side Effects

Transient stinging
Transient blurring.

Ocular Side Effects-Notes

Transient stinging and blurring (particularly with the ointment formulation) may occur on instillation. Hypersensitivity reactions may rarely occur.

General Side Effects

None reported.

Dose

For adults & children (1 month and over): eyedrops, apply 1 or 2 drops up to four times daily.
Ointment, apply topically once or twice daily.

Storage

Store below 25°C.

Propylethylene Glycol 400

Legal Classification

CE: For use and supply by all optometrists.

Available Preparations

Systane Lubricating Eye Drops: 0.4% polyethylene glycol 400 and 0.3% propylene glycol demulcents with HP-Guar (hydroxypropylguar) as a gelling agent (Alcon)

Single Use (Preservative-free):
Systane Lubricating Eye Drops: 0.4% polyethylene glycol 400 and 0.3% propylene glycol demulcents with HP-Guar (hydroxypropylguar) as a gelling agent (Alcon)

Drug Type

Artificial tears/ Ocular lubricants.

Classification

Artificial tears.

Indications

Treatment of dry eye or an unstable tear film. See Clinical Management Guidelines on Tear Deficiency.

Contraindications

Hypersensitivity to polyethylene glycol or any component of the preparation.

Cautions

Multidose preparation contains preservatives which may accumulate in soft contact lenses and cause irritation. Consider single use (unpreserved) preparations in soft lens wearers. Consult preservative tables for contact lens compatibility.

Pregnancy and Lactation

Pregnancy risk category C. There are no adequate and well-controlled studies of in pregnant woman or lactation. This product should therefore be used with caution, and only if the expected benefit to the mother is greater than any possible risk to the foetus or baby.

Interactions

There are no reported interactions. In the case of concomitant use of another topical eye preparation, allow 5-10 minutes between applications of each preparation.

Ocular Side Effects

Transient blurring
Transient stinging

General Side Effects

None

Dose

Adults & children (from 1 month). Apply 1or 2 drops three to four times per day or as required.

Storage

Store below 25ºC.

Proxymetacaine Hydrochloride

Legal Classification

POM: For use by all optometrists.

Available Preparations

Single Use (Preservative-free):
Minims Proximetacaine: eyedrops, 0.5% proxymetacaine hydrochloride (Bausch & Lomb)
Minims Proximetacaine and Fluorescein: eyedrops, 0.5% proxymetacaine hydrochloride, 0.25% fluorescein (Bausch & Lomb)

Drug Type

Local anaesthetic.

Classification

Ester-type local anaesthetic.

Indications

Ocular anaesthesia for short-term procedures e.g. Goldmann applanation tonometry, gonioscopy, minor surgery.

Contraindications

Hypersensitivity to proxymetacaine or other ester-type anaesthetics.
In view of the immaturity of the enzyme system which metabolises the ester type local anaesthetics in premature babies, proxymetacaine should be avoided in these patients.

Cautions

Proxymetacaine should be used cautiously and sparingly in patients with known allergies, cardiac disease or hyperthyroidism because of the increased risk of sensitivity reactions.
The eye should be protected from foreign bodies and rubbing during e period of anaesthesia (up to 30 minutes). Ideally the patient should not leave the practice until corneal sensation has returned.

Pregnancy and Lactation

Pregnancy risk factor C. No well controlled clinical trials have been conducted in pregnancy or lactation. Proxymetacaine should not be used unless considered essential by the clinician.

Interactions

None reported.

Ocular Side Effects

Transient stinging
Transient blurring
Punctate keratitis
Conjunctival hyperaemia

Ocular Side Effects-Notes

Pupillary dilatation or cycloplegic effects have rarely been observed with proxymetacaine. A severe, immediate-type apparently hyperallergic corneal reaction may rarely occur. This includes acute, intense and diffuse epithelial keratitis; a grey ground-glass appearance and sloughing of large areas of necrotic epithelium.

General Side Effects

No reported general side effects.

Dose

Adults & children (1 month and over). 1 or 2 drops is sufficient to anaesthetise the surface of the eye to allow tonometry or foreign body to be removed from the corneal epithelium.

Storage

Store at 2 - 8°C. Protect from light. If necessary, the product may be stored at temperatures not exceeding 25°C for up to 1 month only.

Polyvinyl Alcohol

Legal Classification

P: For use and supply by all optometrists.
CE: For use and supply by all optometrists.

Available Preparations

P
Liquifilm Tears: eyedrops, 1.4% polyvinyl alcohol (Allergan)
Sno Tears: eyedrops, 1.4% polyvinyl alcohol (Bausch & Lomb)

Single use (Preservative-free):
Liquifilm Tears: eye drops, 1.4% polyvinyl alcohol (Allergan)

CE
Blink Refreshing Eye Drops: 1.4% polyvinyl alcohol (AMO)
Clinitas Ultra 3: 1.8% polyvinyl alcohol, 2.0% povidone (Altacor)
PVA 1.4% Tubilux: eyedrops, 1.4% polyvinyl alcohol (M&A Pharmachem)

Single use (Preservative-free):
Blink Refreshing Eye Drops, 1.4% polyvinyl alcohol (AMO)

Drug Type

Artificial tears/ Ocular lubricants.

Classification

Artificial tears.

Indications

Treatment of dry eye or an unstable tear film. See Clinical Management Guidelines on Tear Deficiency.

Contraindications

Hypersensitivity to polyvinyl alcohol or any component of the preparation.

Cautions

Some multidose preparations contain preservatives (benzalkonium chloride or cetrimide) which may accumulate in soft contact lenses and cause irritation. Consider single use

(unpreserved) preparations in soft lens wearers. Consult preservative tables for contact lens compatibility.

Pregnancy and Lactation

Pregnancy risk category C. Although there are no adequate and well-controlled studies of polyvinyl alcohol in pregnancy or lactation, polyvinyl alcohol have been used as pharmaceutical agents for many years with no untoward effects. No special precautions are therefore necessary for the use of polyvinyl alcohol in pregnancy and lactation.

Interactions

There are no reported interactions. In the case of concomitant use of another topical eye preparation, allow 5-10 minutes between applications of each preparation.

Ocular Side Effects

Transient blurring
Transient stinging
Eye irritation
Foreign body sensation
Itching
Hyperaemia

General Side Effects

None

Dose

Adults & children (1 month and over). Apply 1 or 2 drops three to four times per day or as required. If > 6 drops per day consider a non-preserved tear supplement.

Storage

Store below 25ºC. Do not refrigerate.

Rimexolone

Legal Classification

POM: May be used and prescribed by optometrist independent prescribers.

Available Preparations

Vexol: eye drops, 1% rimexolone (Alcon)

Drug type

Anti-inflammatory.

Classification

Corticosteroid.

Indications/Use

Rimexolone is indicated in the treatment of inflammation following ocular surgery and the treatment of anterior uveitis and corticosteroid-responsive inflammation of the conjunctiva, cornea and anterior segment. See Clinical Management Guidelines on Pterygium, Pinguecula and Episcleritis.

Contraindications

Hypersensitivity to rimexolone or any component of the preparation. Rimexolone is contraindicated in viral diseases of the cornea and conjunctiva, fungal diseases of the eye or other infectious diseases where it may mask infection or enhance an existing infection.

Cautions

Rimexolone, as with other corticosteroids, can cause ocular hypertension and should be used with caution in patients with glaucoma (see Clinical Management Guideline on Steroid Glaucoma).
Prolonged use of corticosteroids may suppress host immune responses and increase the possibility of secondary ocular infection.
In diseases causing thinning of the cornea or sclera, corticosteroids have been associated with perforations.
Contact lenses should not be worn during treatment. Contains benzalkonium chloride as a preservative, which may accumulate in soft lenses and cause irritation.

Pregnancy and Lactation

Pregnancy risk category C. Safety of rimexolone during pregnancy has not been established. Therefore, the use of rimexolone during pregnancy requires that the benefits be weighed against the potential risks to the foetus. It is not known if rimexolone is excreted in human breast milk. Caution should be exercised when prescribing to breast-feeding women.

Interactions

There are no reported interactions. In the case of concomitant use of another topical eye preparation, allow 5-10 minutes between applications of each preparation.

Ocular Side Effects

Raised intra-ocular pressure
Posterior sub-capsular cataract formation
Secondary ocular infection
Perforation of the globe
Blurred vision
Ocular discharge

Ocular Side-effects-Notes

The likelihood of ocular hypertension is reduced compared to other corticosteroids e.g. prednisolone. Ocular signs and symptoms similar to the underlying ocular disease being treated were reported in clinical trials e.g. ocular discomfort, epiphora, foreign body sensation, hyperaemia and itching.

General Side-effects

Headache
Rhinitis
Taste disturbance

Dose

Adults: 1 drop should be instilled 4 times daily. Duration of therapy should not exceed 4 weeks. Not licensed for use in children.

Storage

Store below 25ºC.

Rose Bengal

Legal Classification

P: For use and supply by all optometrists.

Available Preparations

Rose Bengal Ophthalmic Strips: 1.3mg Rose Bengal per strip (Alkorn Inc)

Drug Type

Ocular diagnostic preparation.

Classification

Diagnostic stain.

Indications

As a diagnostic stain. Rose bengal solution stains degenerated conjunctival and corneal epithelial cells. It is particularly useful in the diagnosis of keratoconjunctivitis sicca.

Contraindications

Hypersensitivity to rose bengal or any component of the preparation. Rose bengal is able to penetrate soft contact lenses and therefore should not be used when soft contact lenses are worn.

Cautions

Causes severe stinging in patients with dry eyes.

Pregnancy and Lactation

Pregnancy risk category C. The use of rose bengal over the last 15 years has not shown any adverse effects. In the absence of any teratology studies, however, rose bengal is not recommended in pregnancy unless the therapeutic benefit exceeds the potential risk. It is not known whether rose bengal is secreted in breast milk. Therefore use with caution in nursing mothers.

Interactions

None known.

Ocular Side Effects

Transient blurring
Stinging

Ocular Side Effects-Notes

Staining of the eyelids in the case of overspill tearing following application. Stinging more pronounced in patients with dry eyes.

General Side Effects

None

Dose

Adults & children (1 month and over). 1 or 2 drops is usually sufficient for most indications.

Storage

Store below 25ºC.

Sodium Cromoglicate

Legal Classification

POM: For use and supply by additional supply optometrists.
P: For use and supply by all optometrists.

Available Preparations

POM
Sodium cromoglicate: eyedrops, 2% sodium cromoglicate (Non-proprietary)
Vividrin: eye drops, 2% sodium cromoglicate (NuCare)
Hay Crom Aqueous Eye Drops: 2% sodium cromoglicate (IVAX)
Opticrom Aqueous Eye Drops: 2%.sodium cromoglicate (Sanofi-Aventis)

Over the Counter (P formulation)
Pollenase Allergy: eyedrops, 2%.sodium cromoglicate (Peach)
Clarityn Allergy: eyedrops, 2%.sodium cromoglicate (Schering-Plough)
Galpharm Allergy Eye Drops: 2%.sodium cromoglicate (Galpharm)
Numark Allergy Eyedrops: 2%.sodium cromoglicate (Numark)
Opticrom Allergy: eyedrops, 2%.sodium cromoglicate (Sanofi-Aventis)
Optrex Allergy Eyes: eyedrops, 2%.sodium cromoglicate (Crookes Healthcare)

Single use
Catacrom: eyedrops, 2% sodium cromoglicate (Moorfields Pharmaceuticals)

In December 2008, 2% sodium cromoglicate eyedrops were reclassified from P to GSL for the relief and treatment of symptoms of hay fever (not to be used in children <6 years and not for more than 14 days without consulting a doctor, pharmacist (or optometrist)).

Drug type

Anti-inflammatory.

Classification

Mast cell stabilizer.

Indications

POM: For the prophylaxis and symptomatic treatment of acute allergic conjunctivitis, chronic allergic conjunctivitis and vernal keratoconjunctivitis.

P: For the relief and treatment of seasonal and perennial allergic conjunctivitis.

See Clinical Management Guidelines on Atopic keratoconjunctivitis, Vernal keratoconjunctivitis, Conjunctivitis (Acute allergic), Conjunctivitis- seasonal and perennial allergic and Contact lens-associated papillary conjunctivitis.

Contraindications

Hypersensitivity to sodium cromoglicate or any component of the preparation.

Cautions

Contact lens wear should not be worn during treatment. Preparations contain benzalkonium chloride as a preservative, which may accumulate in soft lenses and cause irritation.

Pregnancy and Lactation

Pregnancy risk category C. As with all medications, caution should be exercised especially during the first trimester of pregnancy. Cumulative experience with sodium cromoglicate suggests that it has no adverse effects on foetal development. However, it should be used in pregnancy only where there is a clear clinical need. It is not known whether sodium cromoglicate is excreted in human breast milk but on the basis of its physicochemical properties, this is considered unlikely. There is no information to suggest the use of sodium cromoglicate has any undesirable effects on the baby.

Interactions

There are no reported interactions. In the case of concomitant use of another topical eye preparation, allow 5-10 minutes between each application.

Ocular Side Effects

Transient burning
Transient stinging
Transient blurring

Ocular Side Effects-Notes

Transient stinging, burning, and blurring of vision may occur. Other symptoms of local irritation have been reported rarely.

General Side Effects

None reported

Dose

Adults & children (1 month and over): 1 or 2 drops to be administered into each eye 4 times daily.

Storage

Store below 30°C. Protect from direct sunlight.

Soya Lecithin

Legal Classification

CE: For use and supply by all optometrists.

Available Preparations

Eye Logic Spray Relief for Dry Eyes: 1.0% Soya Lecithin, 0.025% Vitamin A palmitate, 0.002% Vitamin E (tocopherol) (Eye Logic)
Optrex Actimist Eye Spray: (Crookes Healthcare)

Drug Type

Artificial tears/ Ocular lubricants

Classification

Liposome spray

Indications

Treatment of dry eye or an unstable tear film. See Clinical Management Guidelines on Tear Deficiency.

Contraindications

Hypersensitivity to any component of the preparation.

Cautions

Do not spray directly into the eyes

Pregnancy and Lactation

Pregnancy risk category C. There are no adequate and well-controlled studies of in pregnant woman or lactation. However, the components of the preparation are either naturally occurring or used extensively in other products e.g. cosmetics with no reported side effects.

Interactions

There are no reported interactions. In the case of concomitant use of another topical eye preparation, allow 5-10 minutes between applications of each preparation.

Ocular Side Effects

Transient stinging if sprayed directly into the eyes.

General Side Effects

None

Dose

Adults & children (1 month and over). Hold 10cm away from the closed eyelids and spray 1-2 times onto the closed lids three to four times per day.

Storage

Store below 25ºC.

Tetracaine Hydrochloride (Amethocaine)

Legal Classification

POM: For use by all optometrists.

Available Preparations

Single Use (Preservative-free):
Minims Tetracaine: eyedrops, 0.5% tetracaine hydrochloride (Bausch & Lomb)
Minims Tetracaine: eyedrops, 1% tetracaine hydrochloride (Bausch & Lomb)

Drug Type

Local anaesthetic.

Classification

Ester-type local anaesthetic.

Indications

Topical anaesthesia for short-term procedures e.g. Goldmann applanation tonometry, gonioscopy, minor surgery.

Contraindications

Hypersensitivity to tetracaine or other ester-type anaesthetics.
In view of the immaturity of the enzyme system which metabolises the ester type local anaesthetics in premature babies, tetracaine should be avoided in these patients.

Cautions

The eye should be protected from foreign bodies and rubbing during the period of anaesthesia (up to 30 minutes). Ideally the patient should not leave the practice until corneal sensation has returned.

Pregnancy and Lactation

Pregnancy risk category C. No well controlled clinical trials have been conducted in pregnancy and lactation. Tetracaine should not be used unless considered essential by the clinician.

Interactions

Tetracaine should not be used in patients taking sulphonamides.

Ocular Side Effects

Transient stinging
Transient blurring
Punctate keratitis
Conjunctival hyperaemia

Ocular Side Effects-Notes

A severe, immediate-type apparently hyperallergic corneal reaction may rarely occur. This includes acute, intense and diffuse epithelial keratitis; a grey ground-glass appearance and sloughing of large areas of necrotic epithelium.

General Side Effects

No reported general side effects.

Dose

Adults & children (1 month and over). 1 or 2 drops is sufficient to anaesthetise the surface of the eye to allow tonometry or foreign body to be removed from the corneal epithelium.

Storage

Store below 25°C. Protect from light.

Tetracycline

Legal Classification

POM: May be used and prescribed by optometrist independent prescribers.

Available Preparations

Tetracycline: tablets, 250mg tetracycline hydrochloride (Non-proprietary)

Drug Type

Anti-infective.

Classification

Anti-bacterial.

Indications

Tetracycline has been found to be clinically effective in the treatment of a variety of infections caused by susceptible strains of Gram-positive and Gram-negative bacteria and certain other micro-organisms. See Clinical Management Guideline on Blepharitis and Ocular Rosacea.

Contraindications

Hypersensitivity to tetracycline or component of the preparation. Hypersensitivity to any other members of the tetracycline family. Tetracycline is contraindicated in children less than 12 years of age and in pregnant or nursing women.

Cautions

Use with caution in patients with renal or hepatic impairment. May cause photosensitivity and patients should use skin protection, avoid prolonged exposure to sunlight and advised not use tanning equipment. A few cases of pregnancy have been attributed to the use of tetracycline antibiotics with oral contraceptives. Patients taking contraceptives containing oestrogen should be warned that there is a possibility of contraceptive failure and advised to use alternative forms of contraception during treatment. Use with caution in patients with SLE or myasthenia gravis as tetracyclines may exacerbate these conditions.

Pregnancy and Lactation

Pregnancy risk category D: contraindicated in pregnancy. Animal studies have shown that tetracyclines cross the placenta and can cause toxicity to the foetus. Yellow-brown discolouration of the teeth and enamel hypoplasia can occur when drugs of the tetracycline

family are administered after the first trimester of pregnancy. Tetracyclines are excreted into breast milk and therefore contraindicated in nursing mothers.

Interactions

Antacids and preparations containing aluminium, calcium, magnesium, zinc, bismuth or iron may decrease the absorption of tetracycline. Tetracyclines decrease plasma prothrombin activity and a dose reduction in patients taking anticoagulants may be necessary. Tetracyclines may reduce the effect of oral contraceptives (see cautions).

Ocular Side Effects

Blurred vision
Field loss
Diplopia
Discoloration of the conjunctiva and lacrimal secretions

Ocular Side Effects-Notes

Ocular side effects are rare. Visual disturbance (blurred vision, field loss, diplopia) has been reported in association with benign intracranial hypertension.

General Side Effects

Gastrointestinal disturbances e.g. nausea, vomiting and diarrhoea
Discolouration of teeth and enamel hyoplasia (young children)
Abnormal bone growth (young children)
Headache
Photosensitivity
Benign intracranial hypertension

General Side effects-Notes

Gastrointestinal disturbances are commonly reported. The presence of headaches and visual disturbance may indicate benign intracranial hypertension (discontinue treatment).

Dose

For blepharitis and ocular rosacea: treatment may need to be continued for several weeks or months.
Adults: 2 x 250mg tablets twice daily.
Contraindicated in children.

Storage

Store below 25ºC.

Tropicamide Hydrochloride

Legal Classification

POM: For use and supply by all optometrists.

Available Preparations

Mydriacyl: eyedrops, 0.5% tropicamide hydrochloride (Alcon)
Mydriacyl: eyedrops, 1.0% tropicamide hydrochloride (Alcon)

Single Use (Preservative-free):
Minims Tropicamide: 0.5% tropicamide hydrochloride eyedrops (Bausch & Lomb)
Minims Tropicamide: 1.0% tropicamide hydrochloride eyedrops (Bausch & Lomb)

Drug Type

Mydriatic and cycloplegic.

Classification

Anti-muscarinic.

Indications

Mydriasis (short duration) and cycloplegic refraction (in patients in late teens or older).

Contraindications

Hypersensitivity to tropicamide or any component of the preparation. Contraindicated in patients with confirmed or suspected narrow-angle glaucoma as an acute attack may be precipitated.
Multidose preparations contain benzalkonium chloride and should not be used where soft contact lenses are worn.

Cautions

Should be used with caution in very young children (particularly neonates) (use 0.5% strength).
Because of the risk of precipitating angle-closure glaucoma in the elderly and others prone to raised intraocular pressure, an estimate of the depth of the angle of the anterior chamber should be made before use. Darkly pigmented irises are more resistant to pupillary dilation and caution should be exercised to avoid overdosage.
Patients should not drive for at least 2 hours following the instillation of tropicamide.

Pregnancy and Lactation

Pregnancy risk category C. There is insufficient evidence as to the safety of tropicamide in pregnancy or lactation. Tropicamide should be used during pregnancy only when it is considered essential by the clinician.

Interactions

The effect of anti-muscarinic agents may be enhanced by the concomitant administration of other drugs with anti-muscarinic properties such as amantadine, some anti-histamines, butyrophenones, phenothiazines and tricyclic anti-depressants.
In the case of concomitant use of another topical eye preparation, allow 5-10 minutes between applications of each preparation.

Ocular Side Effects

Transient stinging
Transient blurring
Photophobia
Raised intra-ocular pressure

Ocular Side Effects-Notes

Local irritation, hyperaemia, oedema and conjunctivitis may occur following prolonged administration.

General Side Effects

CNS disturbances
Dry mouth

General Side effects-Notes

Theoretical risk of systemic anticholinergic effects. CNS disturbances have been reported in children. Side effects more common in children with blonde hair and blue eyes.

Dose

Adults & children (3 months and over).
Mydriasis: 1 drop followed by a second drop after an interval of 5 minutes. A further drop may be instilled after 30 minutes, if required.
Cycloplegic refraction: 1 drop (1%) followed by a second drop after an interval of 5 minutes.

Storage

Store below 25ºC. *Mydriacyl* stored 2-8ºC. Protect from light.