Chloramphenicol Topical

Newborn use only

2020

Alert	Eye ointment remains in the eye for longer than eye drops and may be the preferred dose form.
Indication	Treatment of acute bacterial conjunctivitis
Action	Bacteriostatic. Acts by inhibition of protein synthesis, interfering with the transfer of activated amino acids from soluble RNA to ribosomes.
Drug type	Broad spectrum antibiotic
Trade name	Chloromycetin, Chlorsig
Presentation	Chloramphenicol eye drops 0.5% contains 5 mg/mL, chloramphenicol eye ointment 1% contains 10mg/g
Dose	Ointment: Apply 3 to 4 times a day in the affected eye and continue for 48 hours after clinical resolution. Severe infection: May need more often at the discretion of the treating team. DROPS: Severe infection: Apply 1 drop every 2 hours in the affected eye for 48 hours and reduce frequency with controlling of infection. Less severe infection: Apply 3 to 4 times a day in the affected eye Continue for 48 hours after clinical resolution Drops and Ointment combination: Apply drops during the day as above Apply ointment once at night Continue for 48 hours after clinical resolution.
Dose adjustment	Therapeutic hypothermia – Not applicable. ECMO – Not applicable. Renal impairment – Not applicable. Hepatic impairment – Not applicable.
Maximum dose	
Total cumulative dose	
Route	TOPICAL ONLY
Preparation	
Administration	Avoid contact between tip of container and infant's eyes. Eye ointment: Hold eye open and administer eye ointment between the lower lid and the eye. Eye drop: After administering eye drop, gently press against the lacrimal duct (inner corner of eye) to reduce systemic absorption. The eye pouch will be full after a single drop. If other eye drop(s) need to be administered, wait 5 minutes between drops.
Monitoring	
Contraindications	History of hypersensitivity to chloramphenicol or any other component of the medication.
Precautions	Family history of blood disorders
Drug interactions	
Adverse reactions	Local irritation e.g. burning, swelling, redness; impaired corneal healing; superinfection; hypersensitivity including sensitisation, urticaria, rash, fever, angioedema, anaphylaxis, blood dyscrasia (rare). Acute hepatitis was reported in an adult following topical chloramphenicol therapy for conjunctivitis. Bone marrow hypoplasia, including aplastic anaemia and death, has been rarely reported following local application of chloramphenicol. Overgrowth of non-susceptible organisms.
Compatibility	No information
Incompatibility	No information
Stability	
Storage	Eye drop: Store unopened bottle at 2–8°C. Once opened, bottle may be stored at <25°C for 28 days. Protect from light. Eye Ointment: Store below 25°C. Discard 28 days after opening. Protect from light
Excipients	
Special comments	
Evidence	**Efficacy**

	Chloramphenicol inhibits bacterial protein synthesis [1]. It is bacteriostatic, with a relatively broad spectrum against most Gram-positive and Gram-negative bacteria. Uncommon occurrences of acquired resistance are caused by enzyme inactivation. ***Topical treatment of bacterial conjunctivitis versus placebo:*** Sheikh et al [2] performed a meta-analysis on the efficacy of topical antibiotics for acute bacterial conjunctivitis. Study participants were aged one month or older. Topical antibiotics were of benefit in improving early clinical (day two to five) (RR 1.36, 95% CI 1.15 to 1.61) and microbiological (RR 1.55, 95% CI 1.37 to 1.76) remission rates, as well as late clinical (days six to 10) (RR 1.21, 95% CI 1.10 to 1.33) and microbiological (RR 1.37, 95% CI 1.24 to 1.52) cure rates. By day six to 10, 41% (95%CI 38 to 43) of cases had resolved in those receiving placebo. No serious outcomes were reported. A single trial compared the effect of 0.5% chloramphenicol (1 drop in the affected eye every 2 hours for first 24 hours and 4 times a day until 48 hours after the clinical resolution) versus placebo (boric acid/borax) [3] in children aged 6 months to 12 years with infective conjunctivitis in primary care. There was no significant difference in clinical cure by day 7 (83% for placebo versus 86% with chloramphenicol), with seven (4%) children with chloramphenicol and five (3%) with placebo having further conjunctivitis episodes within 6 weeks. Adverse events were uncommon (2% in each group). [LOE II] Fukuda et al 2002 reported chloramphenicol eye drop treatment of elderly patients with methicillin resistant staphylococcus aureus (MRSA) ocular surface infections had an efficacy rate of 81% [4]. [LOE IV] ***Topical chloramphenicol versus other antibiotic for bacterial conjunctivitis:*** Normann et al 2002, in an RCT compared 1% fusidic acid twice a day versus 0.5% chloramphenicol eye drops six times a day in 456 neonates with a clinical diagnosis of acute bacterial conjunctivitis. Clinical cure rate was not significantly different (62.2% with fusidic acid versus 64.7% with chloramphenicol). Clinical compliance was better with fusidic acid (90.7% versus 78.0%). A review identified five trials that compared chloramphenicol versus fusidic acid eye drops in patients with bacterial conjunctivitis [5]. Three of the five studies reported no difference in effectiveness between the two preparations with both drugs performing equally well [6-8]. Two studies undertaken in less-developed countries showed fusidic acid to be far more effective but the cure rate with chloramphenicol was low, suggesting resistance or different causal agents [9, 10]. [LOE II, GOR C] Fusidic acid eye drops are not available in Australia. **Safety** Adverse effects were uncommon in trials of topical eye drops [2]. Aplastic anaemia [11, 12], erythema multiforme [13] and drug-induced hepatitis [14] have been reported associated with use of topical chloramphenicol, although all are rare and causality uncertain [1]. Chloramphenicol is not effective for the prevention or treatment of gonococcal or chlamydia ophthalmia neonatorum and may mask clinical signs and delay the diagnosis of gonococcus and chlamydia [15-18]. **Conclusion:** Most children presenting with acute infective conjunctivitis in primary care will get better without topical antibiotic treatment. Moreover, failure of clinical cure is frequent with chloramphenicol. Treatment should be guided by microbiological testing including for chlamydia and gonococcus if clinically indicated or in areas of increased prevalence prior to initiation of eye drops.
Practice points	Chloramphenicol topical eye drops may be preferable if infection of blocked lacrimal apparatus is suspected and if the use is intended at home.
References	1. Robert PY, Adenis JP. Comparative review of topical ophthalmic antibacterial preparations. Drugs. 2001;61:175-85. 2. Sheikh A, Hurwitz B, van Schayck CP, McLean S, Nurmatov U. Antibiotics versus placebo for acute bacterial conjunctivitis. Cochrane database of systematic reviews (Online). 2012;9:CD001211. 3. Rose PW, Harnden A, Brueggemann AB, Perera R, Sheikh A, Crook D, Mant D. Chloramphenicol treatment for acute infective conjunctivitis in children in primary care: A randomised double-blind placebo-controlled trial. Lancet. 2005;366:37-43. 4. Fukuda M, Ohashi H, Matsumoto C, Mishima S, Shimomura Y. Methicillin-resistant Staphylococcus aureus and methicillin-resistant coagulase-negative Staphylococcus ocular surface infection: Efficacy of chloramphenicol eye drops. Cornea. 2002;21:S86-S9. 5. Griffiths P. What type of eye drops should be given to a toddler with conjunctivitis? British journal of community nursing. 2003;8:364-8. 6. Horven I. Acute conjuctivitis. A comparison of fusidic acid viscous eye drops and chloramphenicol. Acta Ophthalmologica. 1993;71:165-8.

7. Hvidberg J. Fusidic acid in acute conjunctivitis. Single-blind, randomized comparison of fusidic acid and chloramphenicol viscous eye drops. Acta Ophthalmologica. 1987;65:43-7.
8. Normann EK, Bakken O, Peltola J, Andreasson B, Buhl S, Sigg P, Nielsen K. Treatment of acute neonatal bacterial conjunctivitis: A comparison of fucidic acid to chloramphenicol eye drops. Acta Ophthalmologica Scandinavica. 2002;80:183-7.
9. Dirdal M. Fucithalmic in acute conjunctivitis. Open, randomized comparison of fusidic acid, chloramphenicol and framycetin eye drops. Acta Ophthalmologica. 1987;65:129-33.
10. Van Bijsterveld OP, El Batawi Y, Sobhi FS, Nassar MW. Fusidic acid in infections of the external eye. Infection. 1987;15:16-9.
11. Laporte JR, Vidal X, Ballarin E, Ibanez L. Possible association between ocular chloramphenicol and aplastic anaemia - The absolute risk is very low. British Journal of Clinical Pharmacology. 1998;46:181-4.
12. Walker S, Diaper CJM, Bowman R, Sweeney G, Seal DV, Kirkness CM. Lack of evidence for systemic toxicity following topical chloramphenicol use. Eye. 1998;12:875-9.
13. Amichai B, Grunwald MH, Halevy S. Erythema multiforme resulting from chloramphenicol in eye drops: Confirmation by mast cell degranulation test. Annals of Ophthalmology - Glaucoma. 1998;30:225-7.
14. Doshi B, Sarkar S. Drug point: Topical administration of chloramphenicol can induce acute hepatitis. BMJ (Online). 2009;339:574.
15. Darling EK, McDonald H. A Meta-analysis of the Efficacy of Ocular Prophylactic Agents Used for the Prevention of Gonococcal and Chlamydial Ophthalmia Neonatorum. Journal of Midwifery and Women's Health. 2010;55:319-27.
16. Schofield CBS, Shanks RA. Gonococcal ophthalmia neonatoriun despite treatment with antibacterial eye drops. British Medical Journal. 1971;1:257-9.
17. Schofield CBS, Shanks RA. Gonococcal ophthalmia neonatorum despite treatment with antibacterial eye drops. Britmedj. 5743;1:484-90.
18. Ramirez-Ortiz MA, Rodriguez-Almaraz M, Ochoa-DiazLopez H, Diaz-Prieto P, Rodriguez-Suarez RS. Randomised equivalency trial comparing 2.5% povidone-iodine eye drops and ophthalmic chloramphenicol for preventing neonatal conjunctivitis in a trachoma endemic area in southern Mexico. British Journal of Ophthalmology. 2007;91:1430-4.
19. Chloramphenicol eye drops. MIMS Online. Accessed on 15 June 2019.

VERSION/NUMBER	DATE
Original	**21/06/2019**
Revised 1.1	**02/07/2020**
Current 1.1	02/07/2020
REVIEW (5 years)	01/07/2025

Authors Contribution

Original author/s	Srinivas Bolisetty
Evidence Review	David Osborn
Expert review	Tony Lai, Brendan McMullan, Alison Kesson
Nursing Review	Eszter Jozsa
Pharmacy Review	Cindy Chen, Jing Xiao, Michelle Jenkins
ANMF Group contributors	Nilkant Phad, Himanshu Popat
Final editing and review of the original	Ian Whyte
Electronic version	Cindy Chen, Ian Callander
Facilitator	Srinivas Bolisetty