



GUIDELINE/ PROCEDURE

SUBJECT: Conjunctivitis in the Neonate

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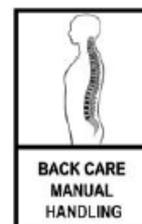
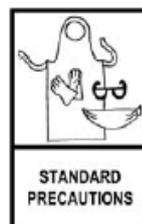
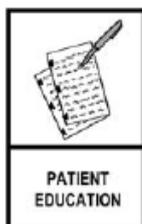
NICU Executive Group

KEYWORDS: chlamydia, conjunctivitis, lid oedema, purulent, sticky eyes, swab,

Disclaimer:

It should be noted that this document reflects what is currently regarded as a safe and appropriate approach to care. However, as in any clinical situation there may be factors that cannot be covered by a single set of guidelines, this document should be used as a guide, rather than as a complete authoritative statement of procedures to be followed in respect of each individual presentation. It does not replace the need for the application of clinical judgment to each individual presentation.

S.W.P.



Rationale:

This guideline provides guidance to staff around the knowledge, application of skills and techniques required to care for neonates suffering from conjunctivitis. Infants in the NICU are susceptible to eye infections and may acquire an infection in-utero, during delivery or while in the NICU. The appropriate application of treatment and infection control principles and practices can assist in preventing ocular damage at the same time as treating the infection.

Outcomes

- Staff understand the common causes of eye infection and treatment principles in the neonate.
- Staff use appropriate technique when cleaning eyes to minimize cross contamination between eyes

Background

Prophylactic treatment of conjunctivitis with silver nitrate was first introduced in the late 1800's which decreased the incidence of gonococcal ophthalmia neonatorum. Neonatal eye prophylaxis is still a part of routine care in the US and Canada however in other developed countries like UK and Australia this practice has been abandoned (Darling & McDonald, 2010) with no subsequent increase in occurrence of infection and childhood blindness.

Most newborns do not require routine eye care unless there is discharge present (KEMH NICU Guideline, 2010). The most common cause of 'sticky eyes' in the first 7 days of life is related to an inflamed lacrimal duct rather than an infective agent (Pairman, 2010).

Purulent discharge needs to be taken seriously and investigated and treated appropriately. (Auckland District Health Board Newborn Services Clinical Guidelines: 2013)

Common Causes of Conjunctivitis (Ashford & St Peters,2009)

- Problems with nasolacrimal duct obstruction
- Infection
 - Viral
 - Bacterial
 - *Staphylococcus*
 - *Pneumococcus*
 - *Haemophilus*
 - *Chlamydia* (*Chlamydia trachomatis*)
 - *Gonococcus* (*Neisseria gonorrhoeae*)
- Irritation eg. Chemical

Signs and Symptoms of Conjunctivitis in Newborns (Kenner & Loft: 2007).

Newborns with conjunctivitis develop drainage from the eyes within 1 day to 2 weeks after birth

Symptoms include:

1. Conjunctival erythema
2. Purulent discharge

3. Lid oedema

Look for involvement of any other system, e.g. herpes vesicles, infected scalp pH site.

Symptoms of the common causes of neonatal conjunctivitis follow:

- **Chlamydial conjunctivitis**
Symptoms of inclusion conjunctivitis include inflammation of the eye(s), swelling of the eyelids, and discharge of pus, and are likely to appear four to fourteen days after birth. Once treated it should resolve within six weeks. Severe conjunctival scarring and deposits of connective tissue under the cornea may occur. Chlamydial conjunctivitis is suppressed by, but not treated by chloramphenicol. Conjunctivitis recurring after such treatment should be assessed for chlamydial infection.
- **Gonococcal conjunctivitis**
this type of conjunctivitis usually manifests acutely around one to two days after birth. Symptoms include red eyes, thick pus in the eyes, and swelling of the eyelids. It is a medical emergency as it can rapidly damage the eye.
- **Chemical conjunctivitis**
Symptoms of chemical conjunctivitis usually includes mildly red eye(s) and some swelling of the eyelids and is usually caused when such things as silver nitrate solution is instilled. This is no longer a treatment in Australia. Symptoms are likely to last for only 24 to 36 hours.
- **Other Bacterial Conjunctivitis**
Organisms such as *Group B streptococcus*, *S. pneumoniae*, *H. influenza*, *Clostridium*, *S. aureus* and *Pseudomonas aeruginosa* have been known to cause conjunctivitis. *Pseudomonas* conjunctivitis is generally an acquired infection. Symptoms appear two to four weeks after birth and include red eye(s) and eyelids swollen with some small amount of purulent discharge. In such cases as *Pseudomonas*, effective treatment with aminoglycosides with or without anti-pseudomonal penicillin or cephalosporin and a locally applied ophthalmic ointment may be required.
- **Viral infections such as Herpes Simplex conjunctivitis**
Newborns are generally infected while being delivered through the birth canal. Infection manifests with eyelid swelling, inflammation, corneal opacity and epithelial dendrites. The dendrites may be seen if the cornea is stained with fluorescein dye and examined under the blue light. The onset usually occurs between two to 14 days after birth. This disease can lead to cataracts and optic neuritis. Acyclovir is the drug of choice. (Remington & Klein et al 2006).
Swabs: If Herpes simplex infection is suspected send a Green capped viral swab for PCR

History

Review of maternal history for

- Length of labour and duration of membrane rupture
- History of vaginal discharge
- Sexually transmitted diseases and microbiology results.

Treatment

This will depend on the degree of discharge and any associated conjunctivitis.

(a) Minimal Discharge and No Conjunctivitis-Sticky eyes

- No swabs or other investigations needed
- Clean eyes with sterile 0.9% saline solution as required (usually with cares)- no swelling of eyelids

Sticky eyes



(Block. healio.com, 2012)

(b) Purulent Discharge with Conjunctivitis

- Any newborn with moderate to severe conjunctivitis should have a swab taken for culture. Consider testing for gonorrhoea and chlamydia specifically (see 'Swabs' below). Gonococcal conjunctivitis occurs most commonly 1 to 2 days and Chlamydia 4 to 14 days after birth
- Do not clean until eye swab/s taken prior to treatment
- Swabs
 - 1 Blue capped bacterial swab for microscopy, bacterial culture and sensitivity. Stuart's medium in the tube can be used to moisten the swab if necessary for comfort or to facilitate collection.
 - 1 Blue capped bacterial swab for gonorrhoea and Chlamydia PCR. A Green capped viral swab also can be used for this.

Purulent Conjunctivitis



(Bowman,eyewiki.aao.org, 2011)

Medication

- General infection
 - Use of topical antibiotic ophthalmic drops or ointment may include, chloramphenicol (drops or ointment), or framycetin (Soframycin Eye Drops). Ointments can be applied less frequently than drops.
- Chlamydial conjunctivitis
 - Treatment is oral erythromycin or Azithromycin for 14 days. Oral sulphonamides can also be used if erythromycin is not tolerated (**CAUTION:** sulphonamides can cause kernicterus). Topical treatment is not recommended, primarily because of failure to eliminate concurrent nasopharyngeal infection (Remington et al (2006).
- Gonococcal conjunctivitis
 - Treatment requires parenteral antibiotic therapy, usually with a third generation cephalosporin, such as Cefotaxime. Topical antibiotic therapy alone is not adequate and is unnecessary if systemic treatment is undertaken. Gonococcal conjunctivitis is an ophthalmologic emergency as the bacteria can erode through an intact cornea.
- Pseudomonal infections
 - Can cause severe ocular damage, including lens dislocation. Advice should be sought from an ophthalmologist. Effective treatment includes aminoglycosides with or without an antipseudomonal penicillin or ceftazidime and a locally applied ophthalmic ointment such as Framycetin (King Edward Memorial Hospital:2012)

Ophthalmology referral

- Consultation with an ophthalmologist is warranted for severe infections or suspected corneal damage (particularly herpes viral and Pseudomonal infections).

Notification

- All cases of Gonococcus and Chlamydia are automatically notified by HAPS to the NSW Public Health Unit
- Confirmation of a Sexually Transmitted Infection will require delicate communication with mother and father. They should be referred to an appropriate health team (e.g. a STD Clinic) for assessment, treatment and contact tracing.

Eye Care

Clinical Practice

Principles

- Follow hand hygiene principles, PPE and disposal of contaminated waste
- Treat both eyes separately and use a **separate** tube if giving ointment for each eye
- Continue eye treatment for 48 hours after clinical resolution (Ashford & St Peters:2013) and negative cultures.

Equipment

- Cotton wool – non sterile
- Normal saline
- Gloves
- Eye drops/ointment

(a) Decompressing nasolacrimal sac

- Hand hygiene
- Apply non-sterile gloves
- Apply gentle pressure for 2-3 seconds on the nasolacrimal sac/medial canthus (inner part of eye near nose). The discharge will come up through canaliculi, which can be wiped with a cotton ball and saline. Sometimes the decompression can force the discharge into the nose unplugging the obstruction
- Remove gloves and perform hand hygiene (Royal Hospital For Women:2011)

(b) General eye cleaning

- Hand hygiene
- Apply non-sterile gloves
- Prepare equipment
- Soak cotton balls in normal saline
- With soaked cotton ball gently wipe from the inside corner to the outside corner once and discard cotton ball, redo same eye if necessary using a new cotton ball. Take care to avoid contact of the aspect of cotton ball in contact with the eye.
- Apply prescribed drops or ointment in the eye just cleaned, ensuring that if using ointment the tube has been marked (RT) or (LT) to avoid cross contamination.
- Remove non-sterile gloves and perform hand hygiene and apply another pair of non-sterile gloves (do not use same gloves for both eyes to avoid cross contamination). Repeat the last two actions in the opposite eye

Documentation

- Neonatal Care Plan
- Neonatal Clinical Notes
- Neonatal Medication Chart

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