

Description

Correct method for administering eye drops/eye ointment to patients.

This procedure has been developed and reviewed by [The Rotterdam Eye Hospital \(Rotterdam, The Netherlands\)](#) and the [The Department of Ophthalmology of the University Hospital Leuven \(Leuven, Belgium\)](#), both members of the World Association of Eye Hospitals (www.waeh.org). If you would like to share your ideas or also implement your knowledge and experience: please contact Nora Ooms, nurse, The Rotterdam Eye Hospital: n.ooms@oogziekenhuis.nl

Aim

The eye medication prescribed by the doctor or ophthalmologist is satisfactorily administered so that it partly reaches the inside of the eye as well.

Target group/working area

Ophthalmologists, trainee doctors, consultation assistants, nurses, medical ophthalmic assistants (MOAs), technical ophthalmic assistants (TOAs), day surgery employees is correct.

Summary

This protocol describes a local treatment method for administering the eye medication prescribed in the fornix.

Responsibilities

- Consultation assistants, nurses, MOAs, TOAs, day surgery employees, ophthalmologists and trainee doctors for following this protocol
- Ophthalmologists and trainee doctors for the correct prescription of eye drops
- All of the above are responsible for keeping up to date with the following knowledge:
 - Knowledge of the anatomy, physiology and pathology of the eye
 - Effects and side effects of the eye drops
 - Knowledge of the new techniques for administering eye drops and proficiency in this technique
- In the event of complications all of the persons mentioned above are responsible for responding adequately and taking action.

Definitions

- Miotics: eye drops that cause a constriction of the pupil
- Mydriatics: eye drops that cause a dilation of the pupil

Competence to treat

- Consultation assistants, nurses, MOAs, TOAs, day surgery employees, ophthalmologists and trainee doctors for following this protocol
- Ophthalmologists and trainee doctors for the correct prescription of eye drops

Materials

- Instructions from a doctor to administer eye drops or protocolled instructions for the procedure
- Correct eye medication
- Swabs or tissues

- Small kidney dish

Method-Realisation

Contents

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I. General checks before administering eye drops

1. Correct patient (name/date of birth?)
2. Correct eye (right eye/left eye/both eyes)? (check in file and physically)
3. Correct medication? (check in file and physically)
4. Correct concentration/correct dose? (check in file and physically)
5. Follow the instructions of the ophthalmologist/doctor (check in file)
6. The shelf life/expiry date? See VI. storage conditions.
7. Indication for the eye drops/patient?
8. Have any possible allergies of the patient been taken into account?
9. Correct time for administering drops (check in file)
 - 9.1. Indication ophthalmologist/operation protocol
 - 9.2. Times for administering drops should be spread across the day as much as possible
10. Does the patient wear contact lenses? (These discolour due to the preservative in the drop liquid and must therefore always be removed before the drops are administered. Hard lenses can be worn again immediately after the drops have been administered and soft lenses (and day lenses) can only be worn again 30 minutes after the drops have been administered.)
11. Inform the patient about
 - 11.1. the treatment
 - 11.2. the purpose of the eye drops
 - 11.3. possible side effects
12. Let the patient assume the correct position
13. Is the eye clean? If not then clean the eye from the outside to the inside with a damp swab/tissue. Use a clean tissue/swab for each stroke.

II. Procedure for administering eye drops

1. Observe the eye:
 - 1.1. secretions/crusts
 - 1.2. swelling/oedema
 - 1.3. red
 - 1.4. pain

- 1.5. opacity of the cornea
2. Let the patient sit up straight or lie down.
3. Wash your hands and dry them well.
4. If the eye is dirty then clean it with a swab dipped in lukewarm water. Rub from the outside to the inside and take a clean swab with each stroke. After this wash your hands again.
5. Open the bottle of drops and place the cap on a clean tissue or hold it between your little finger in your free hand.
6. If possible stand behind the patient and let the patient's head rest against your stomach. If that is not possible:
 - 6.1. Stand next to the patient and let the patient tip his/her head backwards.
 - 6.2. The patient can also remain lying.
7. With the help of a swab/tissue use your non-dominant hand to gently pull the lower eyelid down slightly so that the fornix is open ('duct')
8. Rest the dropping hand (the dominant hand or writing hand) on the forehead/nasal bridge or temple and keep a distance of at least 3 cm.
9. Keep the bottle inclined above the eye so that the tip does not point to the eye. The risk of damaging the eye in the event of a possible shock reaction will be less as a result of this.
10. Ask the patient to stare at the ceiling with both eyes.
11. Drop one drop into the middle of the fornix ('duct') without touching this. The fornix cannot take more than a single drop.
12. In the event that you touch the eye or eyelashes with the bottle:
 - 12.1. Patient's own bottle in home situation: wiping with a clean tissue is sufficient
 - 12.2. Patient's own bottle for use in the hospital: throw away the eye drop bottle and use a new bottle due to the risk of infection
 - 12.3. Bottles for general use: always throw away the eye drop bottle due to the risk of infection
13. After the drop has been administered ask the patient to gently close the eye immediately (do not squeeze eye closed!).
14. Let the patient apply digital pressure to the tear duct for 1 minute to prevent side effects.
15. Excess tear fluid can be wiped away with a clean swab or tissue.
16. After administering the eye drops to a patient always wash your hands or disinfect them with hand alcohol.
17. If needs be apply an eye bandage or eye shield
18. Instruct the patient:
 - 18.1. Not to rub in the eye.
 - 18.2. After the administration of the eye drop the patient might experience blurred vision for a while.
 - 18.3. Some eye drops can cause brief irritation.
19. Close the eye drop bottle and store this in the right location such as the medicine cabinet or refrigerator.

III. Administering eye drops to children

Follow the protocol for adults, but:

1. When you administer the eye drop always say that it will briefly feel wet.
2. If children are scared and close their eyes tightly:

- 2.1. Let the child tip its head backwards and say it must close its eyes
 - 2.2. Let an eye drop fall in the middle of the upper eyelid/eyelashes and say that they can open their eyes again.
 3. Keep the tear duct closed
- With this approach the majority of the eye drop still reaches its destination.

IV. Procedure for administering eye ointment

1. Follow: 'Procedure for administering eye drops' up to and including point 8 (read 'ointment tube' instead of 'eye drop bottle').
2. Keep the tube inclined above the eye so that the tip does not point to the cornea.
3. Let the hand rest on the patient's forehead.
4. Ask the patient to look upwards with both eyes.
5. Squeeze the tube and let a ribbon of ointment about 0.5 to 1 cm fall into the middle of the fornix. When doing this do not touch the eye, the eyelids or the eyelashes. If the ointment is difficult to get out of the tube or tends to stick to the tube then briefly warm up the tube between your hands.
6. If the tube has touched the eye, eyelids or eyelashes:
 - 6.1. Patient's own tube in home situation: wiping with a clean tissue is sufficient
 - 6.2. Patient's tube for use in the hospital: throw away the old tube and use a new tube due to the risk of infection
 - 6.3. Tube for general use: throw away due to risk of infection
7. After the ointment has been administered ask the patient to softly close the eye immediately (do not squeeze eye closed!). If needs be gently pull the lower eyelid over the ointment.
8. If needs be (in consultation with the ophthalmologist) apply an eye bandage or eye shield.
9. If needs be (in consultation with the ophthalmologist) apply a pressure bandage:
 - 9.1. Always use 2 eye pads
 - 9.2. Fold one eye pad in two on the eye with ointment (fold at bottom)
 - 9.3. Place one unfolded eye pad on top of this
 - 9.4. Fix in place with 3 or 4 wide plasters:
 - 1 in the middle of the eye bandage
 - 2 plasters in an arch so that the ends overlap each other
 - If needs be a 4th directly in the middle of the eye bandage
 - 9.4.1.1. Aim: to give the eye rest and to let the ointment take effect.
10. After treating any patient, not just patients with an eye infection, wash your hands or clean them with hand alcohol.
11. Any remains of the ointment on the tube should be wiped off using a sterile compress.
12. Screw the top back on the tube.

V. Administering several eye drops and/or amounts of eye ointment

1. Wait at least 5 minutes between different types of eye drop/eye ointment
2. In the case of a difference in viscosity, first administer the eye drops with the lower viscosity and then those with the higher viscosity.
3. Eye ointment should always be given last due to the longer effect.

VI. Storage conditions

1. Always note the date the bottle is opened. On minims and own serum eye drops also note the time of opening due to the short shelf life.
2. Always throw away eye medication on which the date is not noted!
3. Ensure that person-specific eye medication (minims/own serum eye drops) is labelled with the patient's data.
4. If it is not clear which eye drop bottle a cap belongs to then throw the cap away! There is no risk of infection in the case of an open eye drop bottle. However there is a risk of medication becoming contaminated with another eye medication if a cap is accidentally placed on the wrong bottle. In the home situation the patient must always close the eye drop bottle. A tube of eye ointment and minims must always be closed with a cap.
5. Always read the package insert of the eye medication due to the specific instructions regarding shelf life and storage conditions. The following generally apply, but can change and be different for each country:

| | Shelf life after opening | Storage conditions |
|---------------------------------------|---|--|
| Eye drops in standard bottle | 1 month | See package insert |
| Eye drops in 'COMOD system' | 6 months | See package insert |
| Own serum eye drops | Maximum 48 hours | - After opening store in the refrigerator - Frozen can be kept for 2 months (in deep freezer) |
| Eye drops without preservative/minims | For use on the same patient: shelf life 24 hours. Otherwise throw away immediately: never use on other patients! | See package insert |
| Eye ointments | 1 month | |

VII. Procedure after incorrect administration eye medication

If a wrong drop is administered or the drop is administered to the wrong eye then rinse the eye concerned clean with a physiological saline solution and inform the treating doctor as **soon** as possible.

VIII Reporting

1. In writing in the nursing file:
 - 1.1. note the care provided
 - 1.2. for example, one of the following observations of the eye before and after the administration of eye drops:
 - 1.2.1. secretions: quantity and colour
 - 1.2.2. swelling and oedema
 - 1.2.3. redness
 - 1.2.4. crusts, irritation of the eyelids
 - 1.2.5. redness and swelling of the conjunctiva

- 1.2.6. opacity of the cornea
- 1.2.7. pain
- 1.3. note any possible physical complaints of the patient before and after the administration of the eye drops, such as:
 - 1.3.1. rapid pulse
 - 1.3.2. collapse
 - 1.3.3. urine retention or other urinary problems
 - 1.3.4. breathing problems/lung problems
 - 1.3.5. psychotic problems/confusion
- 2. Verbal reporting when handing over patient:
 - 2.1. If the patient's eye reacts badly to the eye drops administered
- 3. Verbal reporting to the doctor:
 - 3.1. If the patient's eye reacts badly to the eye drops administered

Indications eye drops/eye ointment

- 1. Diagnostic:
 - 1.1. Dilation of pupil for examination (mydriatics)
 - 1.2. Eye staining for examination
- 2. Therapeutic:
 - 2.1. Treatment of infections and inflammations (antibiotics/corticosteroids)
 - 2.2. Frequently used antibiotics: Globenicol (chloramphenicol), Sofradex, Soframycin (framycetin sulphate), Terramycin, Terra cortril, Ultracortenol (prednisolone), Gentamytrex and Dexamytrex
 - 2.3. Preventing drying out of cornea
 - 2.4. Reducing/stabilising eye pressure
 - 2.5. Constricting pupil (miotics)
 - 2.6. Replacing tear fluid
 - 2.7. Preventing infections
- 3. Pre-operative:
 - 3.1. Dilating pupil
 - 3.2. Constricting pupil
 - 3.3. Disinfecting
- 4. Per-operative:
 - 4.1. Surface anaesthesia: Novesine, Cocaine
- 5. Post-operative:
 - 5.1. Reducing inflammations and complications

Indications for use of minims (eye drops without preservative)

- 1. Peri-operative
- 2. Eye damage due to perforation (perforating eye damage is any damage in which an open connection between the outside world and the content of the eyeball has arisen. The so-called 'covered perforation' (spontaneous closure, without leakage at the moment of investigation) is also a perforating eye injury).
- 3. Hypersensitivity for preservatives
- 4. Epitheliotoxicity due to preservatives
- 5. Medicine is not available in preserved form
- 6. Extended wear of soft contact lenses (for example bandage lens)

7. Artificial tears in the case of daily wear soft contact lenses
8. Contact allergy on the skin due to preservative
9. Preservative is undesirable due to chronic use (for example glaucoma)

Contraindications eye drops/eye ointment

1. Allergy for one of the excipients of the eye drop
2. Do not use mydriatics in the case of a small anterior chamber angle
3. Do not use eye drops with corticosteroids in the case of cornea-epithelial problems (inhibits the epithelial healing)
4. Take care with atropine in the case of patients with prostate problems (danger of urine retention)

Complications/Side effects

1. Just like other medicines eye drops and eye ointment can cause allergic reactions (swelling, redness of the conjunctiva and irritation).
2. Side effects can be both localised (in and around the eye) or systemic (in the entire body).
 - 2.1. Always read the package insert for the eye drops so that you know what the possible side effects are.
 - 2.2. Side effects can be prevented by only administering one drop on each occasion (and not a jet).
 - 2.3. Side effects can be prevented by squeezing close the tear duct for at least 1 minute after the drops have been administered.
 - 2.4. If the patient still experiences side effects than let the patient keep the tear duct closed for 3 minutes.
 - 2.5. In the case of severe and/or persistent side effects always inform the treating ophthalmologist.
3. Pay extra attention to:
 - 3.1. allergic reactions after the administration of antibiotics
 - 3.2. side effects after the administration of eye drops to elderly people and children with asthma/ COPD/diabetes mellitus and heart failure
 - 3.3. general toxic symptoms (dry mouth, fever, irritability, hallucinations)
 - 3.4. anticholinesterase effect on a range of organs (saliva/ sweat secretion, muscle weakness, vomiting) after the administration of miotics
 - 3.5. reduced vision
 - 3.6. patient can collapse
4. Consult the *Farmacotherapeutisch Kompas* (www.fk.cvz.nl) or download the app for up-to-date information about indications, contraindications and side effects of all eye medications. (www.bcfi.be)
5. Touching the eye
6. Wrong eye drop: see **VII. Procedure after incorrect administration eye medication**
7. Damage to the eye caused by touching: warn the doctor.

Literature/sources

1. Farmacotherapeutisch Kompas
2. Netherlands Pharmacovigilance Centre Lareb

3. Ophthalmologica
4. Workgroup Infection Prevention
5. www.Oogdruppelen.nl
6. Course ophthalmological care Belgium and the Netherlands
7. Oogheekundige Zorg, Ransijn, A.G.M., Uitgeverij de Tijdstroom, Utrecht, 1996

Assessors

1. pharmacist
2. nurse
3. ophthalmologist
4. hygienist