Instruction manual for preparation of fortified antimicrobial eye drops

Compiled by: Dr Sushmita G Shah, Dr Nikhil S Gokhale. Mumbai Cornea Club

General Instructions

• Should be done by doctor or pharmacist inside a laminar air hood under aseptic precautions. If laminar air hood is not available, please prepare in the operation room

• Disposable syringe should be used

• All drops should be labelled - date of preparation and date of expiry should be mentioned

• Prescription describing frequency of application etc should also be given to the patient

• Storage instructions should also be given. Drops which are to be refrigerated at 4degC can be kept on the refrigerator door.

Aminoglycosides

1. Fortified Tobramycin: 14mg/ml(1.4%)

Method: Add 2ml/80mg of parenteral tobramycin to commercially available tobramycin eye drops 0.3% 5 ml (15mg/5ml).

Shelf Life: 1 week in refrigerator at 4 degrees and 4 days in room temperature

2. Fortified Gentamicin Eye Drops: 14mg/ml(1.4%)

Method: Add 2ml/80mg of parenteral gentamicin to commercial gentamicin ophthalmic solution 0.3% 5 ml (15mg/5ml).

Shelf Life: 1 week in refrigerator at 4 degrees C and 4 days in room temperature

3. Fortified Amikacin Eye Drops: 2.5%

Method: Parenteral Amikacin 250mg/2ml is mixed with 8 ml artificial tears.
Shelf Life: 7 days under refrigeration at 4 Degrees Centigrade

**Cephalosporins**

1. **Fortified Cefazolin Eye Drops: 50mg/ml (5%)**

Method: Reconstitute parenteral Cefazolin 500mg with 2ml sterile water available with the injection and add to 8ml of artificial tears.

Storage: Refrigerate in 4 degrees C.

Shelf Life: 1 week in refrigeration at 4 degrees C and 4 days in room temperature

2. **Fortified Ceftazidime eye drops: 50mg/ml (5%)**

Method: Reconstitute parenteral Ceftazidime 500mg with 2ml sterile water/BSS available with the injection and add to 8ml of artificial tears.

Storage: Refrigerate in 4 degrees C.

Shelf Life: 1 week under refrigeration at 4 degrees C and 3 days in room temperature

**Topical Vancomycin Eye Drops: 50mg/ml (5%)**

Method: Reconstitute 500mg of vancomycin powder for injection with 2 ml sterile water/BSS. Add to 8ml of artificial tears.

Storage: Refrigerate at 4 Degrees C.

Shelf Life: 28 days at 4 Degrees C

**Topical Linezolid 2 mg/ml (0.2%)**

Method: Can use directly from parenteral Linezolid (Lancure / Adlid /Rapidline) available as 200mg/100ml (2mg/ml) IV infusion.

**Topical Colistin 0.19%**

Method: Prepared from parenteral Colistimethate sodium powder (Xylistin) 1million IU/75mg

Added to 10ml distilled water – 7.5mg/ml (0.75%)

1ml of above solution is then added to 3ml distilled water – 0.19% Colistin drops
Topical Imipenem–Cilastin eye drops 1%
Method: To parenteral Imipenem(500mg)-Cilastin (500mg), add 10ml sterile water to create a solution of strength 50mg/ml.
Take 1 ml of this solution and add 4 ml sterile water to make topical Imipenem 1% - 1mg/ml
Storage - In amber coloured bottles
Stability – 3 days at 2-8 deg C

Topical Amphotericin B 0.15%
Method: Add 10 ml distilled or sterile water to parenteral 50mg of amphotericin B powder for injection. Draw 3 ml of this and add to 7ml of artificial tears eye drops.
Storage: Refrigerate in 4 degrees.
Shelf life: 7 days in refrigerator at 4 degrees C and 4 days in room temperature.

Amphotericin B  5 -10 µgm/0.1ml for intracameral injection
To reconstitute 10 µgm/0.1ml :
Method: Reconstituted in BSS or sterile water
From 5mg/ml solution of Amphotericin B (as mentioned above) – take 0.2ml solution and add 0.8ml BSS / sterile water. Now, take 0.1ml of this solution and add 0.9ml BSS/Sterile water to create 0.1mg/1ml Amphotericin B equivalent to 10 µgm/0.1ml. Use immediately.

Amphotericin B 5 -10 µgm/0.1ml for intrastromal injection
Method: Same concentration as is used for intrastromal injection

Topical Voriconazole Eye Drops 1%
Method: Mix 20 ml ringer lactate to 200 mg voriconazole lyophilized powder.
Label: Voriconazole eye drops 1%
Stability: 30days at 4deg C or room temperature

Voriconazole for intrastromal injection 50 µgm/0.1ml
Method: From1% solution voriconazole, take 1ml, add 19 ml ringer lactate to make 0.05mg/ml (50 µgm/0.1ml)
References: