Ocupol®

1. Composition

Each ml of OCUPOL Eye Drops contains:

Polymyxin-B sulfate 5000 IU

Chloramphenicol 4 mg

Each gm of OCUPOL Ointment contains:

Polymyxin-B sulfate 10000 IU

Chloramphenicol 10 mg

2. Dosage form and strength

OCUPOL Drops is available in 5 ml lupolen vial

OCUPOL Ointment is available in a tube of 5 g.

3. Clinical particulars

3.1 Therapeutic indication

OCUPOL is indicated for:

- The treatment of, surface ocular infections involving the conjunctiva and/or cornea caused by susceptible organisms. ·
- For the treatment of superficial bacterial infections of the external auditory canal caused by organisms susceptible to the action of the antibiotics, and
- For the treatment of infections of mastoidectomy and fenestration cavities caused by organisms susceptible to the antibiotics.

3.2 Posology and method of administration

As directed by Physician.

3.3 Contraindication

- The use of OCUPOL is contraindicated in patients with hypersensitivity to any ingredient of the formulations.
- The use of OCUPOL is also contraindicated in epithelial herpes keratitis (dendritic keratitis), vaccinia, varicella other viral diseases of the cornea and conjunctiva, mycobacterial infections of the eye and fungal diseases of ocular structures.

3.4 Special warnings and precautions for use

- The prolonged use of antibiotics may occasionally result in overgrowth of non-susceptible organisms, including fungi.
- If new infections appear the drug should be discontinued and appropriate measures instituted.
- In all serious infections the topical use of OCUPOL should be supplemented by appropriate systemic medication.

3.5 Drug interactions

None are reported.

3.6 Use in special population

- Paediatric: Safety and efficacy in children has not been established.
- Geriatric: Safety and efficacy in elderly patient has not been established.
- Liver impairment: Use with caution.
- Renal failure: Use with caution.
- Pregnancy and lactation: The safety of topical chloramphenicol in pregnancy and lactation has not been established. Chloramphenicol may be absorbed systemically following the use of eye ointment and may cross the placenta and appear in breast milk. Therefore this product is not recommended for use during pregnancy and lactation.

3.7 Effects on ability to drive and use machine

Patients should be cautioned against engaging in activities requiring complete mental alertness, and motor coordination such as operating machinery until their response to OCUPOL is known.

3.8 Undesirable effects

- The adverse reactions reported with topical corticosteroids especially under occlusive dressings include burning sensation, itching, irritation, dryness, folliculitis, hypertrichosis, acneiform eruptions, hypopigmentation, perioral dermatitis, and allergic contact dermatitis, maceration of the skin, secondary infection, skin atrophy, striae and miliaria.
- Blood dyscrasias have been reported in association with the use of chloramphenicol.
- Chloramphenicol is absorbed systemically from the eye and toxicity has been reported following chronic exposure.

- Bone marrow hypoplasia, including aplastic anaemia and death, has been reported following topical use of chloramphenicol.
- Whilst the hazard is rare, it should be borne in mind when assessing the benefits expected from the use of the compound.
- More serious side effects include hypersensitivity reactions that may present as angioneurotic oedema, urticaria, anaphylaxis, fever, and vesicular and maculopapular dermatitis. If this happens treatment must be discontinued immediately

3.9 Overdose

There is limited experience of overdose with OCUPOL. Initiate general symptomatic and supportive measures in all cases of overdosages where necessary.

4. Pharmacological properties

4.1 Mechanism of action

Polymyxin B sulfate has a bactericidal action against almost all gram-negative bacilli except the Proteus group. Polymyxin B sulfate interacts with the lipopolysaccharide of the cytoplasmic outer membrane of Gram-negative bacteria, altering membrane permeability and causing cell death. It does not need to enter the cell.

Chloramphenicol is lipid-soluble, allowing it to diffuse through the bacterial cell membrane. It then reversibly binds to the L16 protein of the 50S subunit of bacterial ribosomes, where transfer of amino acids to growing peptide chains is prevented (perhaps by suppression of peptidyl transferase activity), thus inhibiting peptide bond formation and subsequent protein synthesis.

4.2 Pharmacodynamic properties

Polymyxin B sulfate is a mixture of polymyxins B1 and B2, obtained from Bacillus polymyxins strains. They are basic polypeptides of about eight amino acids and have cationic detergent action on cell membranes. Polymyxin B is used for infections with gram-negative organisms, but may be neurotoxic and nephrotoxic. All gram-positive bacteria, fungi, and the gram-negative cocci, N. gonorrhoea and N. meningitides, are resistant.

Chloramphenicol is a broad-spectrum antibiotic that was derived from the bacterium Streptomyces Venezuela and is now produced synthetically. Chloramphenicol is effective against a wide variety of microorganisms, but due to serious side-effects (e.g., damage to the bone marrow, including aplastic anaemia) in humans, it is usually reserved for the treatment of serious and life-threatening infections (e.g., typhoid fever). Chloramphenicol is bacteriostatic but may be bactericidal in high concentrations or when used against highly susceptible organisms. Chloramphenicol stops bacterial growth by binding to the bacterial ribosome (blocking peptidyl transferase) and inhibiting protein synthesis.

4.3 Pharmacokinetic properties

Polymyxin B sulfate is not absorbed from the gastrointestinal tract, except in infants who may absorb up to 10% of a dose. It is not absorbed through mucous membranes, or intact or denuded skin. Peak plasma concentrations after intramuscular injection usually occur within 2 hours, but are variable and Polymyxin B sulfate is partially inactivated by serum. It is widely distributed and extensively bound to cell membranes in the tissues; it does not appear to be highly bound to serum proteins. Accumulation may occur after repeated doses. There is no diffusion into the CSF and it does not cross the placenta. Polymyxin B is reported to have a serum half-life of about 6 hours but this is prolonged in renal impairment; values of 2 to 3 days have been reported in patients with a creatinine clearance of less than 10 mL/minute. Polymyxin B sulfate is excreted mainly by the kidneys by glomerular filtration, about 60% of a dose being recovered unchanged in the urine, but there is a time lag of 12 to 24 hours before Polymyxin B is recovered in the urine. Polymyxin B is not removed to an appreciable extent by peritoneal dialysis or haemodialysis.

Chloramphenicol is active when given orally and, unlike most other antibacterial, it diffuses into the CSF even when the meninges are not inflamed. The majority of a dose is inactivated in the liver, only a small proportion appearing unchanged in the urine.

5. Nonclinical properties

5.1 Animal Toxicology or Pharmacology

Not required.

6. Description

Already mentioned and covered in the above points.

7. Pharmaceutical particulars

7.1 Incompatibilities

There are no known incompatibilities.

7.2 Shelf-life

OCUPOL eye drops- 18 months.

OCUPOL eye ointment-24 months.

7.3 Storage and handling instructions

Store in cool and dry place.

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