

EVERYTHING HAS ITS PURPOSE

OkoDek

Universal agent for sanitation
of the conjunctiva in complex treatment
of inflammatory eye diseases



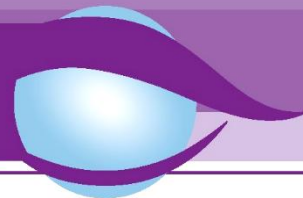
Composition: active substance: 1 ml of solution contains decamethoxin 0.2 mg, Dosage form. Eye drops. ATC Code S01AX

Pharmacological properties: the drug has antiseptic effect and a pluripotential antimicrobial effect against gram-positive (staphylococci, pneumococci, streptococci) and gram-negative (gonococci, meningococci) cocci, corynebacteria, gram-negative bacteria (enterobacteriaceae, pseudomonadaceae), protozoa, yeast-like Candida fungi, Chlamydia and viruses. During administration of Okodek, drug-resistant strains of microorganisms develop slowly.

The drug potentiates the action of conventional antimicrobial agents in the complex treatment. **Clinical characteristics. Indications:** acute and chronic conjunctivitis, blepharoconjunctivitis, gonoblennorrhea, chlamydial lesions of mucous membranes of the eyes. For prevention of blennorrhea in newborns during preoperative period and after eye surgeries for prevention of inflammatory complications. For cleaning contact lenses. **Contraindications:** hypersensitivity to decamethoxin or other components of the preparation. Application during pregnancy or breast-feeding. Use of the drug during pregnancy or breast-feeding is only possible when the expected benefit for a woman exceeds the potential risk to the foetus or a child. Effects on ability to drive and use machines. Patients in whom blurred vision was observed after the drug administration should refrain from driving or using other machines. **Posology and method of administration:** for the treatment of acute and chronic conjunctivitis, blepharoconjunctivitis, gonoblennorrhea, chlamydia-induced lesions of conjunctiva, apply 2-3 drops of Okodek intracon-junctivally 4-6 times a day until a full recovery. For the prevention of infections in newborns, apply 2 drops to the eyes immediately after the birth and 2 hours after the delivery. For prophylactic purposes, Okodek is prescribed at a dose of 2-3 drop 4-6 times a day 1 day before an operational intervention and during 3-5 days after the surgery. **Contact lenses:** dip in the solution for 10-15 minutes, then rinse in sterile 0.9% solution of sodium chloride. **Children:** the drug is used in neonates for the prophylaxis of blennorrhoea. **Adverse reactions:** allergic reactions, local eye irritation are possible with increased individual sensitivity to decamethoxin. **Prescription status:** on prescription, **information on the prescription drug:** information for the professional activities of medical and pharmaceutical representatives. MA of the MOH of Ukraine № UA/14450/01/01 dated 25/06/2015 Read all of the patient information leaflet before you start using the eye drops.

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Use of Okodek for sanitation of the conjunctiva in the treatment of infectious diseases of eyes

Modern medicine, having a whole arsenal of antimicrobial drugs, is not able to fully solve the problems of prevention and treatment of diseases caused by microbes. Scientists explain this by development of antibiotic resistance, specificity of pharmacokinetics of drugs the systemic application of which does not allow creating the required drug concentration in the abnormal focuses; presence of expressed side effects; high cost of systemic therapy.

At the same time, misuse of antiseptic drugs for the treatment of local infectious and inflammatory diseases causes the increase in pyoinflammatory complications.

In the National List of Essential Medicines and Medical Devices as approved by the Regulation of the Cabinet of Ministers of Ukraine (CMU) No. 333 dated 25/03/2009, as amended by the Regulation of the CMU No. 449 (449-2015-p) dated 22/04/2015, some antiseptic drugs that were previously used in medical facilities (boric acid preparations, iodine preparations, hydrogen peroxide, potassium, ethanol, brilliant green) are currently excluded. Instead, in 2003, the clinic practitioner's arsenal was enlarged with domestic antiseptic drug Dekasan® (decamethoxin), which is now approved for medicinal use and commercial production by the domestic pharmaceutical industry.

Objective of the research is to study, using literary source data with the description of performed experimental studies, the efficacy of national antiseptic drugs with decamethoxin as an active ingredient in the treatment of pyoinflammatory processes of the mucosa, in particular their use in the ophthalmic practice.

Materials and Methods

Literary sources were analyzed using system analysis, content analysis and bibliosemantic research methods.

Results and Discussion

In the second half of the 20th – beginning of the 21st century, increased evolution of opportunistic and pathogenic microorganisms is observed, which is implemented in the form of reduction in the general and increase in the absolute count of local infectious lesions, as well as increased incidence of opportunistic, chronic and endogenous infections.

Local infectious lesions of mucosa (eye conjunctiva) significantly differ from systemic disorders in terms of development, pathogenesis, clinical manifestations and immune response. Treatment of inflammatory conjunctiva disorders and their prevention should take into account these differences.

Easy access to the eye conjunctiva motivates active topical administration of antibacterial and antiseptic drugs as a means of direct action on microorganisms that provide decontamination.

There was a widespread use of antiseptic drugs in the early 20th century

in the treatment and prevention of infectious diseases. Introduction and extensive use of antibiotics in the medicine was first accompanied with weakened attention to antiseptic drugs, but later, with the appearance of bacteria strains with multiple antibiotic resistance, an attention to prevention of infections by means of antiseptic drugs and combined administration of preparations of both classes in the therapy of local infections resumed.

In general, antiseptics do not irritate skin and mucosa, they are soluble in lipids, it ensures their pronounced antimicrobial action. The majority of antiseptic preparations have no antigenic properties; therefore, allergic and autoimmune reactions would hardly occur during their use.

Destructive effect of antiseptics on microorganisms is provided by bacteriostatic (mainly) and antibacterial properties. They increase the cell membrane permeability of microorganisms, blocking their enzymes or dissolve lipoprotein structures, cause denaturation of microbial cell proteins, destruction of its structures. Microorganisms that survived on the surface of the mucous membrane after the antiseptic action, cannot induce disease due to insufficient infectious dose and reduced virulence which contributes to their easy destruction by immune factors of the patient.

Manifestation of a specific mechanism of action of antiseptic against a microbial cell depends on the dose of the drug, physiological state and living conditions of the pathogen. Acting on the surface of the skin and mucous membranes, antiseptics prevent the spread and penetration of pathogens into lymphatic and circulatory bed, thus limiting their localization, at the same time reducing adhesive properties of the pathogen and suppressing the pathogenicity factors of bacteria.

The efficacy of antiseptics depends on their chemical structure, the concentration and duration of action, pH value, ambient temperature, microbial contamination and immune defense.

Furacilin (nitrofur line), introduced back in 1944, has been the essential antiseptic agent for the treatment of infected areas of the skin and mucous membranes in the medical

practice for a long time. The mechanism of destructive action of the preparation against microbial cells is associated with the impaired processes of cell respiration and biosynthesis of nucleic acids. At the beginning of their use in clinical practice, Furacilin solutions showed a high level of antimicrobial activity against gram-positive and gram-negative microorganisms. However, in the process of common use of Furacilin during decades, substantial drawbacks of the drug were revealed. Insufficient antimicrobial activity against gram-negative bacteria and data of mutagenic and carcinogenic action of the compound were reported, which, however, were not taken into consideration by most practitioners due to the lack of antiseptic agents in the medical practice.

An important requirement to modern antiseptic drugs is a slow formation of resistance in microorganisms. Among antiseptics, surface-active substances (SAS) – ionogenic and non-ionogenic are commonly used. The most effective SAS against microorganisms is that with the number of atoms from 5 to 16. Ionogenic SAS show bactericidal action. Typical ionogenic antiseptic is decamethoxin – highly-active synthetic drug of rapid action. On the domestic pharmaceutical market, decamethoxin for topical use on conjunctiva is represented by Okodek (a drug product manufactured by Yuria-Pharm LLC, Ukraine). It is manufactured in the form of eye drops, 0.02% solution of 0.4 ml in single-dose containers (10 pcs. in a package).

Okodek has pronounced antibacterial effect on staphylococci, streptococci, Corynebacterium diphtheriae and Pseudomonas Aureginosa, capsule bacteria; it shows fungicidal activity against yeasts, agents causing epidermophytosis, microsporias, some types of molds; it has antiprotozoal (against trichomonas, giardia) and antiviral activity. In this case, high sensitivity is preserved even in bacteria strains resistant to antibiotics. Thus, Okodek shows a significant activity against microorganisms resistant to penicillin, tetracycline, streptomycin, kanamycin, mono-

mycin, neomycin, erythromycin, oleandomycin, cephalosporins, fluoroquinolones, etc. Moreover, during the treatment with Okodek, the sensitivity of antibiotic resistant microorganisms to this class of drugs is slightly increased, whereas resistance to decamethoxin is developed slowly.

Unlike antibiotics, Okodek does not have systemic action. It does not contain preservatives; its long-term administration does not cause allergic reactions, individual sensitivity to decamethoxin is very rarely observed, which is the only contraindication of the drug. There are no restrictions for the use of Okodek in pediatrics. During the therapy, no discomfort, pain, redness, itching and other local reactions are usually observed.

Okodek is widely used for prophylaxis and treatment in ophthalmology for antiseptic treatment of eye conjunctiva; aqueous solutions are used for washing conjunctival cavity. In septic, fungal lesions, the solution can be used for washing and combined treatment with antibiotic therapy. Patients with candidal lesions of conjunctiva are prescribed washing at least 4–5 times a day for 5–10 days. It should be noted that decamethoxin products (Okodek) are not compatible with soaps and other anion compounds; they are not soluble in concentrated solutions of sodium chloride; their efficacy is increased when heated to 37–38 °C before use.

Sanitation of the conjunctiva in infectious eye diseases involves the use of Okodek before each administration of antimicrobial agent in order to reduce microbial load on the conjunctiva and for the preparation for antibiotic instillation. Administration of decamethoxin in the pre- and post-operative period allows preventing the development of inflammatory complications in ophthalmology.

Okodek is a universal antiseptic agent which is recommended for prevention and treatment of bacterial, viral, fungal and protozoal lesions of eyes and their appendages. The preparation increases the sensitivity of antibiotic resistant strains of bacteria to antibacterial agents and potentiates the antimicrobial activity of the latter. Sanitation of the conjunctiva before application of antibacterial drops provides increased efficacy of the therapy, elimination of antibiotic resistance, rapid relief of pathogenic symptoms, reduction of relapse number and hastened clinical/bacteriological recovery of patients.

Please, refer to the editorial for the list of references