

სასხსრის მიდამოში, შემაერთებელი ქსოვილის ცვლის მანევრებლებზე, მეტაბოლურ პროცესზე და ელექტროლიტურ ცვლაზე პაციენტებში მუხლის სახსრის ოსტეოართროზით.

72 პაციენტი რანდომულად განაწილდა 5 ჯგუფად: I ჯგუფს დაენიშნა ფიტოკომპლექსის ელექტროფორეზი სინუსოიდური მოდულირებული დენებით, II ჯგუფს - ფიტოკომპლექსის ულტრაფონოფორეზი, III ჯგუფს - ამპლიპულსთერაპია, IV ჯგუფს - ულტრაბგერითი თერაპია, V ჯგუფს - "ბაზისური" მედიკამენტური თერაპია. ფიტოკომპლექსის კონცენტრაცია სამუშაო შემადგენლობაში იყო 10%. ელექტროთერაპია სინუსოიდური მოდულირებული დენებით ჩატარდა I და IV ჯგუფებში, ულტრაბგერითი თერაპია - უწყვეტ რეჟიმში 0,6ვტ/სმ<sup>2</sup> ინტენსივობის ულტრაბგერის გამოყენებით. მიკროცირკულაციის მდგომარეობის შეფასებისათვის გამოიყენებოდა ლაზერული დოპლერული ფლოუმეტრიის მეთოდი. გამოხატული ანტიდისტროფიული ეფექტი ფიტოკომპლექსის სინუსოიდური მოდულირებული დენებით ელექტრო- და ფონოფორეზის გამოყენებისას პაციენტებში მუხლის სახსრის ოსტეოართროზით ეფუძნებოდა მიკროცირკულაციური დარღვევების კორექციას და გამოიხატებოდა კაპილარული სისხლის ნაკადის გაძლიერებაში, სისხლის პერფუზიის მომატებასა და შეგუბებითი მოვლენების შემცირებაში მიკროცირკულაციის ვენურ რგოლში.

ფიტოკომპლექსის სინუსოიდური მოდულირებული დენებით ელექტროფორეზის გავლენით მეტად, ვიდრე ფიტოკომპლექსის ფონოფორეზისას, უმჯობესდებოდა ცვლითი პროცესები შემაერთებელ ქსოვილში სერომუკოიდის, ფიბრინოგენის და მუკოპროტეინების შემცველობის მხრივ.

მკურნალობის აღნიშნული მეთოდების გამოყენებისას აღინიშნებოდა ელექტროლიტური ცვლის მდგომარეობის გაუმჯობესება მაგნიუმის და ფოსფორის მანევრებლების მიხედვით. ფიტოკომპლექსის სინუსოიდური მოდულირებული დენებით ელექტრო- და ფონოფორეზმა ხელი შეუწყო მეტაბოლური დისბალანსის აღაგებას მკავე ფოსფატაზას მანევრებლის მიხედვით, ხოლო ფიტოკომპლექსის ულტრაფონოფორეზმა, ასევე, აღანიშნავი ნორმალისფერაზას და ტუტე ფოსფატაზას შემცველობის მიხედვით.

ჩატარებული კვლევის საფუძველზე დადგინდა, რომ ფიტოკომპლექსის სინუსოიდური მოდულირებული დენებით ელექტრო- და ფონოფორეზი ხელს უწყობს მკავე ფოსფატაზას მეტაბოლური დისბალანსის აღაგებას. გარდა ამისა, ფიტოკომპლექსის სინუსოიდური მოდულირებული დენებით ფონოფორეზი ხელს უწყობს აღანიშნავი ნორმალისფერაზას და ტუტე ფოსფატაზას შემცველობის ნორმალისფერაზას, რაც დადებითად აისახება მუხლის სახსრის ფუნქციის გაუმჯობესებაზე პაციენტებში ოსტეოართროზით.

## APPLICATION OF ANTIBIOTIC-CONTAINING EAR DROPS IN TREATMENT OF ACUTE OTITIS MEDIA

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Otitis is a very serious and noteworthy disease. In time and adequate treatment guarantees to prevent complications and to cure it. The antibiotic therapy plays a leading role in the treatment of this disease. Sometimes however the symptomatic treatment is sufficient: painkillers, fever controllers, utilization of local nose and ear drops [5,13].

According to the results of various studies, the prevalence of otitis media in one year and two-three year varies under 19% and 32%, respectively. Streptococcus pneumoniae, Haemophilus influenzae and Moraxella catarrhalis are the most common bacterial pathogens of [4,8].

Otalgia appears the most common otitis symptom. It has primary and secondary forms. The primary forms include the ear diseases, the main cause of which is the the eustachian tube dysfunction. These secondary forms cover the otalgias that include the sacral nerve, facial nerve, miscarriage, jaw inflammation, odontogenic pain. The acute inflammation of the middle ear is the most frequent cause of the ear pain in children. Primary otalgia can be the bacterial or viral infectious as well as the mechanical trauma or cochlear neuritis [11].

The classification and treatment of otitis media are discussed in the present paper. The course of the disease is atypical in some cases that often combine with the properly diagnostic acute otitis media [15]. The special attention demands the neonates and adults with systemic chronic diseases [5,15].

In some otitis media instances the ear drops can play an important cure role. A number of studies have suggested that the drops are appropriate for plaque ear lesions only [10].

The use of topical antibiotics in the form of ear drops is recommended during or after the plaque myringotomy. After the myringotomy many patients develop otorrhea. In such cases the utilization of topical antibiotics with a combination of corticosteroids is effective.

According to a double-blind randomized study in one of the clinics in Germany: The use of ciprofloxacin and fluocimolacetonid in the ear drops reduces otorrhea from 7 days to 4 days. It can be prescribed twice a day for 1 week [4].

In General and Family Medicine of the German Society provided guideline of chronic otitis media, we read that the patients suffering from this disease should undergo ear toilet, cleaning

of external auditory canal use of ear antiseptic solutions and local antibiotic-containing ear drops (especially ofloxacin, and the Profloxacin). If after this procedure the treatment will fail we can use systemic antibiotic therapy [2,9].

Otitis externa is spread worldwide due to high temperatures and humidity, more commonly found in tropical countries. In 90% of patients it is caused by bacterial infections such as: *Pseudomonas aeruginosa* (22-62%) and *Staphylococcus aureus* (11-34%), polymicrobial infection - 8%, and fungi are rarely found in this disease. Uncomplicated external otitis treatment includes cleaning of external auditory canal, local antiseptic and antimicrobial therapy, as well as adequate NSAIDs. In the guideline provided by the German Society of General and Family Medicine about external otitis we read that after cleaning the external auditory canal and assessing the risks, we begin local therapy with antibiotics and corticosteroids. By this guideline, 65-90% of patients develop clinical improvement in any disease after 7-10 days. Research has shown that the use of topical antibiotics drops symptoms faster than placebo, so the disease can be cured and also is reduced chance of relapse [6,12].

Fever is caused by inflammation of the hair follicle caused by *Staphylococcus aureus* or *Streptococcus pyogenes*. Our treatment should begin with drainage of furunculus, which should then be treated with sterile diapers and antiseptic solutions. At the beginning of treatment, local antibiotics are included in the regimen, and general antibiotic therapy should be initiated at elevated temperatures.

In the treatment of acute or chronic stages, the main goal is to stop the pain syndrome and restore hearing. This can be achieved by combined treatment. One of the leading roles in the complex treatment is the use of topical medicines - ear drops. There is a target group of medications that works successfully in perforating otitis media and has no ototoxic effect. They include rifamycin and fluoroquinolones, while ciprofloxacin is the gold standard among fluoroquinolones. They have a wide range of action and act on both Gram-positive and Gram-negative microorganisms.

Research has been made on otitis media of different forms. (External otitis media - 27; Acute perforated purulent otitis media - 35; Chronic mesothympania - 32). The drops were applied three times a day after ear repair. No side effects. None of the patients showed resistance to treatment. In all cases remission and recovery were achieved with or without systemic antibiotic therapy [8,14].

Ear drops - may contain one or more active ingredients. Their action is to reduce pain and discharge, to relieve itching, burning and swelling. Possible side effects include an allergic reaction to any of the components [1,3].

The list of ear drop antibiotics: ciprofloxacin (quinolones-

acting on gram-positive and gram-negative bacteria), neomycin (aminoglycoside group, they inhibit bacterial protein synthesis), ofloxacin (quinolone), Polymyxin B (polymyxin), rifamycin (a rifamycin antibiotic used in chronic middle ear inflammation when perforation is noted on the plaque), Also thyrotricin. Glucocorticoids: dexamethasone, hydrocortisone. Local anesthetics include lidocaine, benzocaine and procaine [1].

The aim of the research was to determine the efficiency of antibiotic-treated ear drops in the treatment of acute otitis media, in combination with mono or systemic antibiotics compared to placebo. Data were analyzed using descriptive statistics, frequency distribution of variables was determined and the results were presented in appropriate numerics and percentages.

**Material and methods.** The research has been made in the National Center for Ear-Nose Disease, January-July 2019. The study involved 250 patients, ranging in age from 2 to 64 years. Patients' data is anonymous and cannot be identified. 125 patients were diagnosed with middle purulent otitis, 20 patients with middle secretory otitis, 78 with external diffuse otitis, and 27 with external otitis media.

Pearson correlation coefficient was calculated to determine the relationship between variables. The reliability coefficient (t) was used to evaluate the result, indicating the probability of a correct answer. For the study, we took  $t=2$ , which corresponds to a probability of 95%.

**Results and discussion.** In addition, 10 patients with chronic otitis granulation-polyptotic exacerbations were examined. Drops containing hormone and antibiotics were used in cases where polyps and granulation almost completely covered the perforation of the plaque and made it impossible to get the medication into the plaque. The patient was under daily observation. In 3-4 days, decrease in granulation size was observed, which allowed visualization of perforation. After that, we will move on to only non ototoxic antibiotic drops.

125 patients with acute or chronic exacerbated middle purulent otitis without complications were studied. Treatment started with monotherapy with antibiotic-containing ear drops. In 102 patients, discharge was discontinued on the third day, in 10 patients the discharge decreased from the third day, and in 13 patients the intensity of discharge remained unchanged. In these individuals, systemic antibiotic therapy had to be initiated from day 5, in the tenth day of treatment patients were treated completely (Table 2).

With regard to monotherapy for pain in middle-grade otitis media, 27 out of 105 patients had completely relapsed from day 3, 8 had decreased pain intensity by the eighth day, and 70 had recurred pain for a short time, requiring systemic antibiotic treatment. Thereafter, in all cases, a complete recovery was achieved (Table 3).

Table 1 Classification of otitis

Total amount	Middle purulent otitis	Middle secretory perforator	Acute outer Diffuse	Outer confined
250	125	20	78	27

Table 2. Results of monotherapy of middle purulent otitis media

Total amount	Discharge was eliminated after three days	Decreased after three days	No changes
125	102	10	13

Table 3. Pain during middle purulent otitis after monotherapeutic treatment

Total amount	Pain relieved after three days	Pain decreased after three days	No changes
105	27	8	70

Table 4. Effects of monotherapy on middle and secretory otitis media with ear and nose drops

Total amount	Pain relieved after three days	Pain decreased after three days	No changes
12	2	5	5

Table 5. Outcome of monotherapy with diffuse and diffuse otitis exterior ear drops

Total amount	Discharge was eliminated after three days	Decreased after three days	No changes
27	8	9	10

After antibiotic administration, all patients stopped Discharge.

As research has shown, monotherapy with ear drops is most effective in the treatment of acute purulent inflammation of the middle ear (without complications). And when it comes to other signs of intoxication (dizziness, fever, headache) then systemic antibiotics and other medications should be included.

As for secretory otitis, the most common symptom is hearing loss, a feeling of numbness. At this time, it is necessary to have direct combined treatment, which involves the use of nasal blood-thinning drops, antihistamine drugs, mucolytics and so on. If a symptom of pain is present, then we have to use local ear drops. In the study we have found that in all twenty patients, hearing loss did not improve. After only nasal vasoconstrictor treatment, congestion was reduced in 5 patients from the third day, and after two weeks in all patients, hearing was restored.

External, both in diffuse and acute inflammation, it is necessary and quite effective to use drops containing local antibiotics, anesthetics and corticosteroids.

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#### SUMMARY

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Otitis is a serious and noteworthy disease. Only timely and adequate treatment guarantees to cure it and prevent complications. The present study involved 250 patients, ranging in age from 2 to 64 years. Patients' data were anonymous and cannot be identified. 125 patients were diagnosed with middle purulent otitis, 20 with middle secretory otitis, 78 with external diffuse otitis, and 27 with external otitis media. The aim of the research was to determine the efficacy of antibiotic-contained ear drops in the treatment of acute otitis media, in combination with mono- or systemic antibiotics. The data were analyzed utilizing the descriptive statistics. The frequency distribution of variables was also determined and the results were presented in appropriate numeric values and percentages.

**Keywords:** Otitis media, ear drops, antibiotics, otalgia.

#### РЕЗЮМЕ

#### ИСПОЛЬЗОВАНИЕ АНТИБИОТИКОСОДЕРЖАЩИХ УШНЫХ КАПЕЛЬ В ЛЕЧЕНИИ ОСТРОГО ОТИТА

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Целью исследования было определить эффективность антибиотикосодержащих ушных капель в лечении остро-

го среднего отита в сочетании с монотерапией или системными антибиотиками. В исследовании приняли участие 250 пациентов в возрасте от 2 до 64 лет. Данные пациента являются анонимными. Большинство пациентов (n=125) диагностированы со средним гнойным отитом, 20 – со средним серозным отитом, 78 с наружным диффузным отитом,

27 - с наружным ограниченным отитом. Результаты исследования показали, что лечение среднего и наружного отита с использованием местных капель уха и носа улучшает состояние пациентов с 3 дня, что проявляется в облегчении боли, уменьшении или полном прекращении выделений из уха и потребления системных антибиотиков.

### რეზიუმე

ანტიბიოტიკის შემცველი ყურის წვეთების გამოყენება მწვავე ოტიტის მკურნალობაში

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<sup>1</sup>ყელ-ყურ-ცხვირის ეროვნული ცენტრი, ჯაფარიძე-ქვეანიშვილის კლინიკა, თბილისის სახელმწიფო სამედიცინო უნივერსიტეტის ყელ-ყურ-ცხვირის დეპარტამენტი, საქართველო

კვლევაში მონაწილეობა მიიღო 2-64 წლების 250 პაციენტმა. 125 პაციენტს, ანუ გამოკვლეულთა უმრავლესობას, აღენიშნებოდა შუა ჩირქოვანი ოტიტი, 20-ს – შუა სერეტიორული ოტიტი, 78-ს – გარეთა დიფუზური ოტიტი, ხოლო 27-ს – გარეთა შემოფარგლული ოტიტი. კვლევის მიზანს წარმოადგენდა მწვავე ოტიტების მკურნალობაში ანტიბიოტიკების შემცველი ყურის წვეთების ეფექტურობის განსაზღვრა. კვლევაში დაადასტურა, რომ შუა და გარეთა ოტიტის მკურნალობა ყურის და ცხვირის ადგილობრივი

მოქმედების მედიკამენტების გამოყენებით პაციენტთა დიდ პროცენტში მდგომარეობის მნიშვნელოვანი გაუმჯობესების ან სრული განკურნების საშუალებას იძლევა მიღწეული. დადებითი ეფექტი შეიმჩნევა მკურნალობის დაწყებიდან მესამე დღეს, რაც გამოიხატება ყურიდან გამონადენის შემცირებაში ან სრულ შეწყვეტაში, ტკივილის ანულირებაში. ლოკალური მკურნალობა ამცირებს ზოგადი მოქმედების ანტიბიოტიკთა სისტემური გამოყენების საჭიროებას.

## EFFECT OF SMOKING STEAM COCKTAILS ON THE HARD TISSUES OF THE ORAL CAVITY

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Smoking tobacco is one of the most common harmful habits of a person. statistics of recent years indicate an increase in the number of smokers, including women and the younger generation.

In the modern world, the problem of studying the impact of smoking steam cocktails on human health, as well as the development of methods for preventing diseases that were caused by the action of this habit, is one of the main directions of health protection development, both in Russia and around the world.

It is known that smoking steam cocktails has a multi-component effect on human health. Due to the general resorptive, toxic, carcinogenic effects [2]. The oral mucosa and periodontal tissue are the first gateways to tobacco smoke.

The earliest manifestations that can be detected in tobacco-dependent individuals are changes in the oral mucosa and small salivary glands. The resulting pathological processes in the oral cavity are of both theoretical and practical interest [6,7].

Tobacco smoke affects the epithelial cells of the oral mucosa, which leads to an increase in the rate of death of surface epithelial cells, as well as the presence of keratinization foci and an increase in the manifestations of fibrosis in the submucosal

layer, this is proved by studies of various authors [9,13]. As a result, pathogenic microflora penetrates into the tissues, and its reproduction occurs much faster [11,13]. Chronic stomatitis and cheilitis of smokers are manifestations of the influence of smoking on the oral mucosa. These diseases are characterized by swelling, but in this case it is absent. With a long course of the disease, the color of the mucosa changes to bluish-brown, and in the absence of treatment, focal atrophy can be detected.

It was found that oral candidiasis and tobacco smoking with the help of steam cocktails are interrelated [1,4,8]. The fact that the intensity of smoking contributes to the development of acute candidiasis, as well as increases the growth of fungal flora, has been proven experimentally and clinically [5,12]. It is also proved that fungi of the genus Candida play a role in the development and aggravation of malignancy processes, which is clinically confirmed by frequent cases of a combination of oncological diseases and candida infection [4]. It was found that as a result of tobacco smoking, the phagocytic activity of leukocytes and macrophages decreases. The amount of conditionally pathogenic microflora increases, which leads to a violation of non-specific immunity [10].