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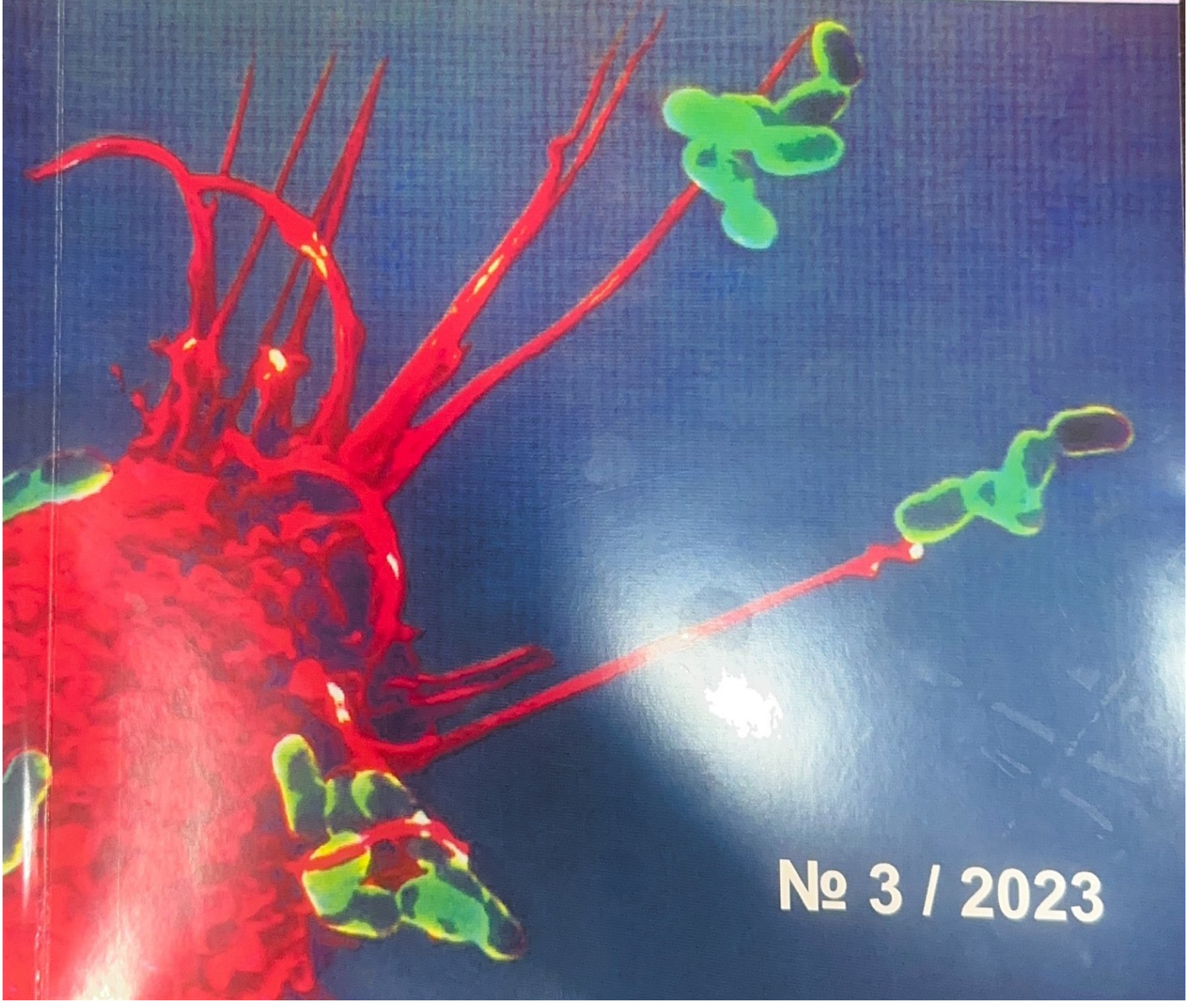

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СОДЕРЖАНИЕ

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THE STUDY OF THE MICROBIAL FLORA OF THE CONJUNCTIVA IN PATIENTS IN THE INTENSIVE CARE UNIT

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According to the literature data, the total percentage of ocular complications in patients during their stay in the intensive care unit or in the early post-resuscitation period is approximately 20–42% and is mainly associated with the wrong choice of methods for preventing ophthalmic complications. Eye injury in patients in intensive care units often has a combined character and is a polysyndromic condition. [1,2]

Complications that arise during the course of intensive care are often the reason for the insufficient qualification of medical personnel in the field of ophthalmology. The lack of detailed recommendations for the prevention and management of patients in this group often leads to severe complications: erosive changes, keratitis, and corneal ulcers, which can result in their perforation and the development of endophthalmitis. Given the difficulties of diagnosis and the often impossibility of collecting anamnesis, identifying the true extent of damage to the organ of vision remains a difficult aspect of working with such patients. often have a violation of the protective properties of the adnexa resulting from metabolic disorders, mechanical ventilation of the lungs, sedation, paralysis, and a decrease in the level of consciousness [3]. Impaired protective mechanisms of the eye include poor eyelid closure, inhibition of Bell's phenomenon, decreased blink reflex, and decreased tear production. It should also be taken into account that the intensive care unit is an environment rich in pathogenic microflora, which can contribute to increased exposure to the surface of the eye of various microorganisms, which in turn are significantly resistant to antimicrobials and require the most commonly used broad-spectrum antibiotics [4]. In addition, prolonged non-closure of the ocular surface, which occurs in patients in the intensive care unit, causes a cascade of biochemical reactions, resulting in a violation of the microflora of the conjunctiva, culminating in inflammation, hypoxia, and dry eye syndrome [5,6,7].

Dry eye is one of the main risk factors for infectious keratitis, which can lead to corneal clouding and blindness. Large-scale studies to determine the microbial flora of the conjunctiva, in particular, on patients in the intensive care unit, have not been conducted.

The aim of this study was to study the microflora of the conjunctiva in patients in the intensive care unit and their sensitivity to antimicrobial drugs.

Materials and research methods. The examination was carried out in intensive care units of the city clinical emergency hospital in Tashkent. Over past year, 1848 patients with various pathologies were admitted to the intensive care unit, of whom 918 needed ophthalmological care.

Bacteriological examination of the microflora of the conjunctival cavity in patients with combined head and eye injuries makes it possible to select the correct antibacterial treatment with high accuracy and avoid septic complications. A total of 861 specimens (conjunctival swabs) were collected from various patients in the ICU and sent for culture and sensing. The ocular criterion for selecting patients for bacterial culture was the presence of lagophthalmos, conjunctival discharge, exposure keratitis, and corneal perforation. Culture swab samples were taken from the lower conjunctival sac without touching the eyelid margin or eyelashes. Samples were taken from both eyes and sent to the microbiological laboratory. Microbial susceptibility to antibiotics was isolated, identified, and studied using standard laboratory methods.

Results and discussion. For the study, 136 patients (272 eyes) of the intensive care unit with various pathologies were selected, among whom 76 (55.88%) were men and 60 (44.12%) were women. The age of the patients varied from 40 to 60 years; the mean age was 42.68 17.21. Patients were in the intensive care unit for 1 to 14 days; the average length of stay for patients was 6.9 4.5 days. Among 272 conjunctival swab specimens, 76 (27.9%) showed no microbial growth, and 196 (72.1%) specimens isolated at least one microbe. Among the positive cultures, 225 microbial isolates were found, and 29 (10.7%) samples showed more than one microbial isolate. Most of the isolates were coagulase-negative Staphylococcus spp. Depending on their general pathology, the patients were divided into groups. (Table №1.).

Table number 1

The composition of the microflora of the conjunctiva in patients in the intensive care unit

Identified isolates	Total	1-group	2-group	3-group	4-group	5-group
Staphylococcus spp	125 (55.5)	66 (51.2)	33 (68.8)	12 (52.2)	6 (75)	8 (61.5)
Diphtheroids	33 (14.67)	16 (12.4)	3 (6.3)	7 (30.4)	2 (25)	5 (38.5)
Staphylococcus aureus	29 (12.89)	19 (14.7)	10 (20.8)	0	0	0
Pseudomonas aeruginosa	12 (5.33)	10 (7.6)	0	2 (8.7)	0	0

Acinetobacter sp.	10 (4.44)	8 (6.2)	0	2 (8.7)	0	0
Enterococcus fecalis	10 (4.44)	6 (3.1)	4 (8.3)	0	0	0
Candida sp.	6 (2.66)	4 (3.10	2 (4.2)	0	0	0
Total	225 (100)	129 (100)	52 (100)	23 (100)	8 (100)	13 (100)

In the intensive care unit, 148 samples were taken from patients in a hypoglycemic coma. (Group 1) 38 (25.7%) samples showed no microbial growth. At least one microbe was isolated from 110 (74.3%) samples. Of the 110 samples that showed microbial growth, 129 microbial isolates were found. Nineteen (12.8%) samples showed more than one microbial isolate.

68 samples (group) were collected from patients who underwent abdominal surgery and were treated in the intensive care unit. The most common cause was perforating peritonitis. 24 (35.3%) samples showed no microbial growth. At least one microbe was isolated from 44 (64.7%) samples. Of the 44 samples that showed microbial growth, 52 microbial isolates were found. Eight (11.8%) samples showed more than one microbial isolate. In most cases, ocular colonization and systemic infection with the same bacteria coexisted in the same patient.

In the intensive care unit, 28 samples were taken from patients who had suffered a car accident (group 3). Seven (25.0%) samples showed no microbial growth. At least one microbe was isolated from 21 (75.0%) samples. Of the 21 samples that showed microbial growth, 23 microbial isolates were found. Two (7.1%) samples showed more than one microbial isolate. In patients with coronary pathology who were in the intensive care unit, 12 samples were collected (Group 4).

The most common diagnoses were myocardial infarction and congestive heart failure. Four (33.3%) samples showed no microbial growth. All 8 (66.7%) samples showed single isolates. In patients with neurological pathology who were in the intensive care unit with the most common ischemic stroke, subdural hematoma, and extensive intracerebral hemorrhage, 16 samples were collected (Group 5). Three (18.8%) samples showed no microbial growth. Of the 13 samples that showed microbial growth, 13 microbial isolates were found. Only normal commensals have been isolated, such as coagulase-negative Staphylococcus spp. (n = 8, 61.5%) and diphtheroids (n = 5, 38.5%), depending on the underlying disease. The antimicrobial sensitivity of the identified isolates was also determined; the data are indicated in Table №2.

Table number 2

Antimicrobial sensitivity of conjunctival microorganisms in patients in the intensive care unit.

Antimicrobial	Sensitive	Intermediate	Стойкий
Ciprofloxacin	96 (76.8)	6 (4.8)	23 (18.4)
Cloxacillin	65 (52.0)	2 (1.6)	58 (46.4)
Erythromycin	87 (69.6)	2 (1.6)	36 (28.8)
Amikacin	104 (83.2)	0	21 (16.8)
Penicillin	20 (16.0)	0	105 (84.0)
Ceftriaxone	98 (78.4)	7 (5.6)	20 (16.0)

Values are presented as a number (%).

ICU = intensive care unit; CONS = coagulase-negative Staphylococcus spp.

1) Staphylococcus spp.

A total of 125 isolates were tested for antimicrobial susceptibility to ciprofloxacin, cloxacillin, erythromycin, amikacin, penicillin, and ceftriaxone. Of these 125 isolates, 17 (13.6%) were resistant to both erythromycin and amikacin but sensitive to tetracycline, while 14 (11.2%) were resistant to erythromycin, amikacin, cloxacillin, and ceftriaxone. They were sensitive to both tetracycline and vancomycin.

2) Staphylococcus aureus

A total of 29 isolates of Staphylococcus aureus were found. They have been tested for antimicrobial susceptibility to ciprofloxacin, cloxacillin, erythromycin, penicillin, and ceftriaxone. All 29 (100%) isolates were resistant to penicillin, but all were susceptible to ciprofloxacin, cloxacillin, erythromycin, amikacin, and ceftriaxone.

3) Pseudomonas aeruginosa

Twelve isolates of Pseudomonas aeruginosa were found. They have been tested for antimicrobial susceptibility to amikacin, ciprofloxacin, ceftazidime, cefoperazone plus sulbactam and amikacin. All 12 (100%) isolates were sensitive to all mentioned antimicrobials.

4) Acinetobacter spp.

Ten isolates of Acinetobacter spp. They have been tested for antimicrobial susceptibility to amikacin, ciprofloxacin, ceftazidime, amikacin, meropyrin, cefoperazone plus sulbactam, and amikacin. All 10 (100%) isolates were sensitive to all mentioned antimicrobials.

5) Diphtheroids

A total of 33 diphtheroid isolates were detected and tested for antimicrobial susceptibility to ciprofloxacin, cloxacillin, erythromycin, amikacin, penicillin and ceftriaxone, of which 27 (81.8%) isolates were resistant to penicillin. Only six (18.2%) isolates were susceptible to penicillin. All 33 isolates were susceptible to ciprofloxacin, erythromycin, amikacin and ceftriaxone.

6) Enterococcus fecalis

Ten isolates of Enterococcus fecalis were found. They have been tested for antimicrobial susceptibility to ampicillin, tetracycline, vancomycin, and

doxycycline. All 10 isolates were resistant to both ampicillin and tetracycline. All isolates were susceptible to vancomycin.

Conclusion:

Eye care for intensive care patients cannot be overemphasized. Despite preventive measures such as moisturizing eye drops, ointments containing antibiotics, and eyelid taping, the threat of reduced vision and loss of vision remains. Knowledge of the general microbial colonization on the ocular surface in patients in the intensive care unit and their sensitivity makes it possible to select the correct antibacterial treatment with high accuracy and avoid septic complications.

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РЕЗЮМЕ

ИЗУЧЕНИЕ МИКРОБНОЙ ФЛОРЫ КОНЪЮНКТИВЫ У ПАЦИЕНТОВ РЕАНИМАЦИОННОГО ОТДЕЛЕНИЯ

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