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ETIOPATOGENETIC FEATURES OF OTITIS MEDIA IN PATIENTS WITH HIV INFECTION

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Annatation. The work was carried out at the clinical base of the Bukhara State Medical Institute - and at the regional multidisciplinary clinical hospital. Analyzed data of examination and treatment of 75 patients from 18 to 60 years old, with ENT pathology against the background of HIV infection for the period from 2020-2021. All patients underwent a comprehensive examination, including otorhinolaryngological, clinical laboratory, bacteriological studies.

The results of the study showed that the main causative agents of middle ear disease developed against the background of HIV infection, the pathogenic microflora in the group of HIV-infected patients was significantly higher compared to similar non-HIV-infected patients.

Key words: HIV-infected patients, non-HIV-infected patients, acute otitis media, chronic otitis media.

Relevance. The probability of contact of an otorhinolaryngologist with HIV-infected patients increases due to a significant increase in the number of cases of HIV infection. With HIV infection, various manifestations of the disease often occur with damage to the ENT organs. Literature data indicate a high prevalence of respiratory tract diseases in people infected with the human immunodeficiency virus [1;4;10;20]. Recent studies show that the most common pathogens of acute and chronic diseases of the ENT organs (nose, nasopharynx, ear) they are pneumococcus (25-30%), hemophilic bacillus (15-20%), moraxella (15-20%), B-hemolytic streptococcus group A (2-5%), Staphylococcus aureus (5%) and other microorganisms (20%) [2;6;9;18]. Currently, there are more than 300 species of bacteria that are found and live in the cavities of the nose and mouth, 10-15 species of them are able to induce diseases. Pneumococcus and hemophilus bacillus are one of the main microorganisms that are etipathogenetic agents of acute infections in otorhinolaryngology. Quite rarely, the causes of diseases are moraxella cataralis and beta-hemolytic streptococcus of group A. Anaerobic pathogens are of particular importance (up to 48% of cases), because here they cause such terrible complications as orbital and intracranial purulent processes, sepsis with the development of infectious and allergic lesions of other organs, for example, the heart and kidneys, and they also cause a decrease in the quality and duration of life [3;5;12;14].

The results of microbiological analysis of the punctate of the tympanic cavity indicated that, as with ARS, the main causative agents of AOM are Streptococcus pneumoniae and Haemophilus influenzae [13;15;22]. These are exactly the bacteria whose different strains are introduced and populate the nasopharynx in most children with HIV infection. Streptococcus pneumoniae and Haemophilus influenza are the two types of bacteria that together account for approximately 60% of the bacterial pathogens of the disease. Relatively rarely, Moraxella catarrhalis (3-10%),

Streptococcus pyogenes (2-10%), Staphylococcus aureus (1-5%) are isolated. Approximately 20% of the crops from the tympanic cavity were not inflammatory, or "retained" their sterility [16;19;21]. Viruses are also often an etiological factor of AOM. Mycoplasma pneumoniae is assigned a certain importance in the development of AOM, which, in particular, is capable of inducing bullous hemorrhagic myringitis. In addition, Chlamydia trachomatis and Chlamydophila pneumoniae are also the cause of CCA in children [7;8;11;17].

Purpose of the study: to study the features of etiological factors of acute and chronic otitis media in patients with HIV-positive and HIV-negative status.

Materials and methods. The work was performed at the clinical base of the Bukhara State Medical Institute and the regional multidisciplinary clinical hospital. The data of examination and treatment of 75 patients from 18 to 60 years old with ENT pathology on the background of HIV infection for the period from 2020-2021 were analyzed. All patients underwent a comprehensive examination, including otorhinolaryngological, clinical and laboratory, bacteriological studies.

Results of the study. The patients were divided into groups according to the following indicators: 1. Patients with acute otitis media (AOM) 25 patients, including HIV-negative 7 patients, HIV-positive -18; 2. Patients with chronic otitis media -50 (ChOM), HIV-negative 16 and HIV-positive 34.

Table 1.1

Species spectrum of pathogens	in acute otitis	media in	patients with	HIV-negative status
and HIV-positive status				

	Indicators	Acute otitis media in HIV-		Acute otitis media in HIV-	
№		negative patie	ents (n=7)	positive patients (n=18)	
		абс.	%	абс.	%
1	Staph.aureus	4	40	3	9,6
2	Staph.epidermidis	1	10	2	6,5
3	Staph.saprophyticus	-	-	1	3,2
4	Str.pyogens	-	-	-	-
5	Str.pneumoniae	1	10	2	6,5
6	Str.fecalis	-	-	-	-
7	Str.veridans	-	-	-	-
8	Ps.aeruginosa	3	30	5	16,2
9	Escherichia coli	-	-	1	3,2
10	Klebsiella sp.	-	-	1	3,2
11	Proteus sp.	-	-	1	3,2
12	Moraxellasp.			-	-
13	Haemophilus sp.	1	10	1	3,2
14	Peptostreptococcus sp.	-	-	1	3,2
15	Peptococcus sp.	-	-	2	6,5
16	Fusobacterium sp.	-	-	1	3,2
17	Candidasp.	-	-	3	9,7
18	Penicillium sp.	-	-	3	9,7

19	Aspergillussp.	-	-	4	12,9
	Total isolated strains in %	10	100	31	100

The results of the bacteriological study were expressed in colony-forming units KOE/ml of the contents of the affected foci of ENT organs. The frequency of occurrence of strains of certain species was expressed in%, in relation to the total number of isolated strains and the number of studied contingents, as well as the occurrence in monocultures and associations. The results of the study of the species spectrum of pathogens in AOM are presented in Table 1.1.

In the microbiological study before treatment in patients with AOM without HIV infection, there was no growth of microflora in 22.2% of cases. The isolated microorganisms were detected in 55.5% of cases in the form of a monoculture and in 22.2% of samples in two component associations.

In patients of the first group, both cocci and rods were contained in the purulent discharge. A total of 10 strains were isolated, of which 5 strains belonged to staphylococci (50.0%) and 4 strains to gram-negative rods (40%). The analysis of the species spectrum of pathogens showed that in all clinical groups, 4 strains of S. aigeis (40%) and 3 strains of P. aeruginozae (30%) were sown more often. On the contrary, S. pneumoniae and Haemophilus spp strains were seeded to a lesser extent in the cultures of patients with AOM without HIV infection (10%), respectively.

In a microbiological study before treatment in 18 AOM patients with HIV infection, microflora growth was absent in 11.1% of cases. The isolated microorganisms were detected in 33.3 cases in the form of a monoculture and in 55.6% in the form of an association, and of these, 7 (38.9%) patients had two in component associations, and 3 (16.7%) had three component associations.

In patients with AOM, a total of 31 strains of microorganisms were isolated, of which 10 strains belonged to pathogenic (S. aureus, S. pneumoniae and P. aegidiposae) species (32.2%), 9 strains (29%) representatives of fungal flora, 4 strains (12.9%) belonged to conditionally pathogenic anaerobes, 3 strains to concomitant or conditionally pathogenic cocci (9.7%) and 3 strains to transient gram-negative bacteria (9.7%). It should be noted that these types of microbes (anaerobic, fungal and gram-negative bacterial flora) were not isolated in AOM patients with HIV-negative status.

Attention is drawn to the high proportion of isolated bacterial associations — 55.6 % of the patients with bacterial confirmation. These indicators are 2.5 times higher compared to patients with AOM without HIV status.

Thus, among HIV-uninfected patients with ENT pathology in the acute form of the disease, mainly coccal flora was sown (50-85%), and in patients with a chronic course, gram-negative flora, anaerobes and fungi were also registered. It is obvious that there is a direct proportional dependence on the severity of the course and chronization of ENT pathology to an increase in the number of spectrum and frequency of seeding of pathogens in mixed cultures with a chronic process. Moreover, in patients with a chronic process, the frequency of seeding of pathogens in mixed cultures significantly exceeds (by 2 times) that indicator in patients with acute inflammatory diseases of the ENT organs, in children with ENT pathology with HIV-positive status, during the primary microbiological examination, except for recognized pathogens (AOM), mainly in concentrations from 10^4 to 10^6 KOE /ml, representatives of conditionally pathogenic and transient microorganisms were isolated. We found a significant increase in the frequency of release of anaerobic microorganisms, and a significant increase in fungal flora was also found in patients with AOM compared to patients of group 1 with HIV-negative status. **Table 1.2**

Species spectrum of pathogens in patients with chronic otitis media

Nº	Indicators	Chronic oti	tis media in	Chronic otitis media in	
		HIV-negativ	e patients	HIV-positive patients	
		(n=19)		(n=38)	
		абс.	%	абс.	%
1	Staph.aureus	5	21,8	2	2,9
2	Staph.epidermidis	2	8,7	3	4,4
3	Staph.saprophyticus			2	2,9
4	Str.pyogens			-	-
5	Str.pneumoniae	2	8,7	3	4,4
6	Str.fecalis			2	2,9
7	Str.veridans			-	-
8	Ps.aeruginoza	6	26,1	7	10,4
9	Escherichia coli			2	2,9
10	Klebsiella sp.			1	1,5
11	Proteus sp.			3	4,4
12	Moraxellasp.	3	13,1	5	7,4
13	Haemophilus sp.	2	8,7	4	5,8
14	Peptostreptococcus sp.			5	7,4
15	Peptococcus sp.	1	4,3	4	5,8
16	Fusobacterium sp.			5	7,4
17	Candidasp.			3	4,4
18	Penicillium sp.	1	4,3	9	13,3
19	Aspergillussp.	1	4,3	8	11,8
	Total isolated strains	23	100	68	100

with HIV-negative and HIV-positive status

The next stage of the work was to assess the frequency of occurrence of strains of certain types of microorganisms in chronic middle ear lesions in patients with and without HIV infection. Table 1.2 describes the frequency of occurrence of pathogen strains in chronic otitis media in HIV-negative and HIV-positive patients at the beginning of the study.

Bacteriological results of the study, the species spectrum of pathogens in inflammatory diseases of the ENT organs in patients with HIV – positive status showed that significant changes in the horizontal structure of the microbial spectrum in all examined groups of sick children with chronic diseases of the ENT organs. A characteristic feature of these changes is a significant disparity between both recognized pathogens and conditionally pathogenic microflora.

With recurrent forms of otitis media (19 patients in total), the bacteriological diagnosis was confirmed in 16 (84,2,6%) of the examined patients, while 23 strains of microorganisms were isolated, microflora growth was absent in 15.8% of cases. Isolated microorganisms were detected in 52.6 cases in the form of a monoculture and in 31.6% of samples in the association. Staphylococcal process was detected in 30.4% of the examined patients, which was 43.7% of the number of patients whose diagnosis was confirmed by bacteriological methods. In 26.2% of

cases, P. aegidiposae was isolated. In association with P. Moraxella spp.and/or representatives of Peptococcus spp., Aspergillus spp. were identified with aegidiposa or staphylococci in 6 patients. In 34 patients with ChOM, a bacteriological study determined the absence of microflora in 3 (7.3%) cases, in 35 (92.7%) patients, 68 strains of microorganisms were isolated. In 8 sick children (21.1%), the isolated microorganisms were detected in the form of a monoculture and in 27 (71%) cases, the isolated microorganisms were in an association, of which in 21 (40%) cases they belonged to two component associations and 6 (21%) more than two component associations.

As can be seen from the presented data, the frequency of monoculture isolation in patients with HIV-positive status decreased by 7.2 times compared to the control group, and in mixed culture, on the contrary, in patients with ChOM with HIV-positive status increased by 2.2 times compared to the control group.

Among the isolated microorganisms, representatives of the fungal flora were most often found in 20 (57.1%) children with HIV-positive status, among which fungi of the genus Penicillium spr. were sown in 9 (25.7%) cases. These indicators are 3.4 times higher in patients with ChOM compared to those in patients with ChOM without HIV status.

The bacterial contamination of the studied material also had a visible tendency to increase the representatives of anaerobic bacteria in patients with ENT pathology with HIV-positive status. Anaerobic bacteria were sown in 19 (63.3%) cases in patients with ChOM with HIV-positive status, in 14 (40%) patients with ChOM. These indicators were 6.7 times more often detected in sick children with HIV-positive status.

Against the background of a decrease in the body's resistance to HIV infection, the etiological role of conditionally pathogenic microflora has sharply increased in patients with chronic otitis media. In this group, the registration of opportunistic representatives of sem has sharply increased. Enterobacteriaceae compared with patients of the control group. Anaerobic bacteria were seeded in 6 (17.1%) cases in patients with HIV-positive ChOM. The dominant representatives in this family are Proteus spp. they were detected in 8.7% of patients with a high density of microbial colonization $(4.0 \cdot 103 \pm 7.7 \cdot 102 \text{ KOE/ml})$. These indicators are significantly higher (100%) than the results of the control group.

Thus, the data obtained by us on the regularities of the etiological role of the species structure of recognized pathogens of ENT pathology with HIV-negative status are consistent with the literature data indicating that coccoid flora (S. aureus, S. pyogens, S. pneumoniae) and gramnegative rods (P. aegidiposae, Haemophilus spp) and to a lesser extent transient microorganisms are found in patients with inflammatory diseases of the ENT organs.

In HIV-positive patients with AOM, the frequency of seeding of pathogens in mixed cultures is significantly higher (by 3.3 times) than in HIV-negative patients. The same trend persists when analyzing the seeding rate of pathogens in patients with chronic disease, while in HIV-positive patients, the frequency of seeding of mixed culture increases by 2.7 times. An increase in the number of certain types of bacteria and their associations among the rest during the disease period, as well as their dominance in the population inhabiting the lesion, can indirectly prevent a decrease in the overall resistance of the body.

The results obtained indicate the possibility of synergism of associative forms of microflora in the development of inflammatory diseases of the middle ear in HIV/AIDS positive patients.

Conclusion. In comparison with the main pathogens of middle ear diseases developed against the background of HIV infection, similar patients without HIV infection, patogen microflora was significantly higher in the group of HIV-infected patients.

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