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THE RELATIONSHIP OF THE SPECIES COMPOSITION OF MICROORGANISMS IN THE ORIGIN AND DEVELOPMENT OF PURULENCE INFLAMMATORY DISEASES

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Resume

We, together with the staff of the Department of Microbiology of TashIPME, conducted studies to increase and establish the etiological role of aerobic and facultative anaerobic microflora in the development of purulent inflammatory processes in the maxillofacial region.

The results obtained show that, with the development of APID, the majority of the observed [93.8%]patients most often have aerobes and facultative anaerobes. Of these microorganisms, staphylococci were Staphylococci 71.9%, Streptococci 21.9%, Gram-negative bacillus 6.2%.

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Thus, we have discovered the leading role of aerobes and facultative anaerobes in the occurrence of acute odontogenic purulent-inflammatory processes of the maxillofacial region.

Keywords: *perosthetitis, abscess, phlegmon, osteomilitis, jaw-facial region, treatment*

СООТНОШЕНИЕ ВИДОВОГО СОСТАВА МИКРООРГАНИЗМОВ ПРИ ВОЗНИКНОВЕНИИ И РАЗВИТИИ ГНОЙНО- ВОСПАЛИТЕЛЬНЫХ ЗАБОЛЕВАНИЙ

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Резюме

Нами анализ проведеных исследования по установлению этиологической роли аэробной и факультативно-анаэробной микрофлоры в развитии гнойно-воспалительных процессов в челюстно-лицевой области проводилься в лабораториии кафедры микробиологии ТашИУВ .

Полученные результаты показывают, что при развитии ОГВЗ у большинства наблюдаемых [93,8%]больных чаще всего выделяются аэробы и факультативно-анаэробы. Из указанных микроорганизмов стафилококки составили Стафилококки 71,9%, Стрептококки 21,9%, Грамотрицательные палочки 6,2%.

Таким образом, нами обнаружена ведущая роль аэробов и факультативно-анаэробов, в возникновении острых одонтогенных гнойно воспалительных процессов челюстно-лицевой области.

Ключевые слова: *периостит, абсцесс, флегмона, остеомиелит, челюстно-лицевая область, лечение*

ЮЗ-ЖАҒ СОҲАСИ ОДОНТОГЕН ЙИРИНГЛИ ЯЛЛИҒЛАНИШ КАСАЛЛИКЛАРИНИ КЕЛИБ ЧИҚИШИ МАСАЛ АСИДА АЭРОБ ВА ФАКУЛЬТАТИВ АНАЭРОБ МИКРОФЛОРАНИНГ ИШТИРОКИ

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Резюме

Биз, юз-жағ соҳаси йирингли-яллиғланиш касалликлари келиб чиқишида аэроб ва факультатив анаэроб микроорганизмларнинг қай даражада учраши ва иштирок этишини ТошВМОИ микробиология кафедраси базасидаги микробиология лабораторияси натижалари асосида таҳлил қилдик.

Текшириш натижаси шуни кўрсатдики, асосан [93,8%]беморларда аэроб ва факультатив анаэроб учрашлиги аниқланди.

Шундан Стафилококклар 71,9%, Стрептококклар 21,9% ва грамманфий таёқчалар 6,2% ташкил этди.

Шундай қилиб, юз-жағ соҳаси одонтоген йирингли яллиғланиш касалликларини асосан аэроб ва факультатив анаэроб микроорганизмлари келтириб чиқаришини текширувлар натижаси кўрсатди.

Калит сўзлар: *периостит, абсцесс, флегмона, остеомиелит, юз-жағ сохаси, даволаш*

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Introduction

Purulent-inflammatory diseases of the maxillofacial region to date remain one of the most common and complex problems of modern surgical dentistry and maxillofacial surgery, the main reason for the development of intracranial complications and septic conditions, temporary disability among the population

[3,4,10,12].

Despite the fact that the primary prevention of purulent-inflammatory diseases , which consists in timely rehabilitation of foci of chronic odontogenic infection, is the most effective, early diagnosis and treatment can reduce the risk of the most serious complications in the maxillofacial region [3,4,10,12].

The main role in the etiology of inflammatory diseases of the maxillofacial region is played by microorganisms , in most cases vegetating on the mucous membranes of the oral cavity, in periodontal pockets and carious cavities. Therefore, most studies were aimed at isolating and studying the properties of just such a flora. The results of these studies are now undeniable evidence of the etiological significance in the purulent-inflammatory diseases of FROs of such microorganisms as Staphylococcus spp ., Streptococcus spp . [4,5,6,9,10,12]. However, there is significant evidence base [7,8,11], indicating that the conditionally pathogenic flora plays a role in etiology .

An analysis of the literature data on the role of microorganisms in the purulent-inflammatory processes of the maxillofacial region [FFA]showed that the most common pathogens are spherical gram-positive bacteria, namely staphylococci and streptococci [13,23,25].

So, according to [2,8,11,12]staphylococci stand out from the studied patient material from 60 to 80 percent.

Odontogenic purulent-inflammatory diseases of the MNF is a nosological group requiring emergency medical care and, therefore, studying the issues of their etiology, pathogenesis, clinic and treatment are one of the urgent problems of practical medicine [1,2,10,12].

It should also be noted that in recent years there has been information about the increased role in their occurrence of other pathogens not previously encountered i.e. gram-negative bacteria that live in the oral cavity.

The aim of our study the species composition of the microflora of purulent discharge taken from patients with various forms of acute purulent-inflammatory diseases of the FJR of odontogenic origin.

Patients and methods

Bacteriological research, at the Department of Microbiology of TashIPME , subjected to 220 samples of pus taken from 230 patients before and after treatment who were admitted to the inpatient department of the Department of Surgical Dentistry of TashIPME , with various acute forms of purulent-inflammatory diseases of the CLW: periostitis, abscesses, phlegmon, osteomyelitis, etc.. between 2014 on 2019y.

The studied material was taken from the pathological site with a sterile syringe and delivered in a special transport medium (STM), in a ratio of 1:10, which, after preliminary microscopy in order to determine the degree of contamination with the alleged pathogenic substance , was seeded on the following elective- selective nutrient media:

-blood agar (BA)- for separation of streptococcus and identification to species;

-lactic vitelline -salt agar (LVSA)- for separation of staphylococci and their subsequent identification group to a specific accessory;

-Endo environment - to highlight representatives of the Enterobacterium family and their identification to the species;

-The China- Tarozzi environment - to determine the presence of anaerobes with their subsequent identification to the clan or group;

- Saburo environment - with and without antibiotics - to determine the presence of fungi, and in particular fungi of the genus Candida .

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Total isolated and studied by conventional methods in microbiology 260 crops, including 114 aerobes and facultative anaerobes, which investigated the ability to form factors of pathogenicity and virulence (hyaluronidase , Lecithinase , plazmokoagulaza , fibrinolysin and hemolytic properties).

The results were statistically processed by the methods of Fisher and Student in the modification of R.N. Biryukova [1964] and are shown in tables 1, 2, 3.

Results discussion

According to the results of bacteriological studies, out of 220 patients studied by us, anaerobic flora was not found in 23 in the studied material. Anaerobic microorganisms were found in 97 patients (88.3%) in a pure culture and in association both with other anaerobes and optionally with anaerobes and aerobes. Among anaerobes, the overwhelming majority of the isolated cultures belonged to bacteroids and fusobacteria were much less likely to stand out to l ostridia , peptostreptococcus, and waillone lla . From 21 Bacteroides strain were identified as B . oralis ,

10- B . asaccharoliticus , 13- B . fragilis , 12- B . melaninogenicus , 10- B . ureoliticus , 14- did not fit into the known identification schemes. Among fusobacteria 21- F . necroforum , 14- F . nucleatum , 8- F . mortiferum , and 5-were not identified . The most frequent associates of anaerobes were epidermal , Staphylococcus aureus and hemolytic streptococci .

An analysis of the data in the tables on the study of pus samples taken from 120 patients with various forms of acute purulent-inflammatory diseases of an oral cavity of odontogenic origin shows that various microflora are planted from the contents of the pathological process, consisting of groups and types of anaerobes and facultative anaerobes.

Table No. 1 reflects the nature of the microbiocenosis of the contents of the pathological lesion located in the FJR.

Table № 1

Inoculation of various aerobes and facultative anaerobes from the pus of patients with acute purulent-inflammatory diseases of the FJR (in absolute numbers and percent)

Total allocated of cultures	Of these, aerobes and facultative anaerobes	Staphylococci		Streptococcus		Gram-negative sticks	
		Abs.	%	Abs.	%	Abs.	%
260	114	82	71,9	25	21,9	7	6,2

According to table No. 1, it is seen that out of 180 samples of pus, 260 cultures were isolated, of which 114 i.e. 43.84% of all allocated, are representatives of aerobes and facultative anaerobes.

Of these, staphylococci and streptococci were most often sown, which respectively amounted to 71.90% and 21.9%. Gram-negative sticks were sown in the amount of 7 cultures and amounted to 6.2% .

Information on the species composition of individual genera and groups of isolated aerobes and facultative anaerobes is given in table No. 2 .

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Table № 2

The frequency of excretion of aerobic species and facultative anaerobes in acute purulent-inflammatory diseases of the FJR (in absolute numbers and percent)

Genus or group of isolated microbes	Types of isolated bacteria	The number of strains of the genus	
		Abs.	%
Staphylococcus	S. aureus	26	31,7
	S.epidermidis	49	59,8
	S.saprophyticus	2	2,4
	S.halemolyticus	4	4,9
	Other types of staphylococci	1	1,2
Total strains		82	100
Streptococcus	S.pyogenes	18	72,0
	S.falcalis	7	28,0
	Total strains	25	100
Inspection and - soli d sticks	E.coli	3	42,8
	Enterobacter aerogenes	1	14,3
	Proteus mirabilis	1	14,3
	Non fermenting	2	28,6
Total strains		7	100
Total aerobes and facultative anaerobes		114	

Analysis of the results shown in table No. 2 showed that out of 114 isolated cultures of aerobes and facultative anaerobes, 82 belonged to staphylococci, 25 to streptococci and 7 to gram-negative bacilli.

Of the 82 cultures of staphylococci, 26 were identified as' coagulase-positive Staphylococcus aureus and amounted to 31.7%, but the vast majority of isolated staphylococci i.e. 56, did not possess the ability to produce plasmocoagulase and are assigned to the group of coagulase-negative staphylococci (CNS-68.3%). Deciphering CBS showed that, among the CBS species, S was most often sown . epidermidis , less commonly the S . haemolyticus and s. saprophyticus and, accordingly, they amounted to 59 , 76 %, 4.88% and 2.44%.

Other types of CNS were rarely isolated, and one studied culture of staphylococcus did not fit into the biological characteristics of the known CNS.

The data obtained by us about a significant specific weight of CNS in acute purulent-inflammatory processes of organically modified organisms of odontogenic origin confirm the results of other studies and testify to the validity of the approach to them as “dangerous and potentially pathogenic microorganisms”

[1,3].

It should be noted that the identification of patients isolated from pus, staphylococci was not difficult, since the cultures of staphylococci studied by us were typical and clearly fit their characteristics to the characteristics of their genus and species according to Bergi [1986]: they were all gram-positive, located in the smear in the form of clusters characteristic of them: they were catalase-positive and fermented glucose under anaerobic conditions. Saureus coagulated rabbit plasma most often after 3-4 hours of incubation in a thermostat, formed a golden pigment after 48 hours, fermented mannit under anaerobic conditions and had the ability to

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form hyaluronidase , fibrinolysin, lecithinase and hemolize red blood cells in BA.

Species CNS differentiated among themselves by the oxidation of a number of carbohydrates in the nutrient agar poured into petri dishes, sensitivity to novobiocin and manifestation hemolytic properties on the spacecraft (para . No. 42 of " And the identification of staphylococci ")

It should be noted that in spite of an extended range studied properties except S . haemolyticus, we did not detect the presence in pus of other new types of CNS, which, according to other authors, are the causative agents of purulent-inflammatory diseases and are included in Bergi's classification of the 9th edition [1984].

We have also not revealed the presence of species of the new genus Stomatotococcus , introduced into the family Miorococcaccae , which according to literature is a human inhabitants of the oral cavity, facultative anaerobic and characterizing features of which are the availability of true capsules; they are often catalase-negative and culturally characteristic of them is the “phenomenon of a surface defect in the nutrient medium” [Bergeyes 1986; V.I. Pokrovsky et al. 1998].

Of all the isolated streptococci, the majority were identified as Streptococcus pyogenes and Enterococcus falca lis and, accordingly, they amounted to 72.0% and 28.0%. This high percentage inoculation enterococci, which are inhabitants of the intestines, with purulent inflammatory diseases FJR, indicates the presence of failures in the immune system of the patient [2,5].

Most of the studied streptococcal cultures were characterized by a clear morphology and were located in the smear by chains, gram-positive coloration, negative catalase test and pronounced hemolytic properties on BA against the background of negative Sherman tests .

Enterococci different from pyogenic , its polymorphism cells were larger and located on Man, by alone or form a short chain "; on BA colonies are larger than other streptococci, without significant hemolysis with a tendency to drain the growth of the most characteristic features that distinguish them. from pyogenic streptococci, are Sherman 's positive tests , namely: growth in bile and salt broths, on alkaline nutrient agar , resistance to temperature, reduction of methylene blue in milk.

For convenience, the results of our study, in the practice of dentistry, we thought it appropriate to give totaled together a table showing the proportion of the most important pathogens in which we study nosological forms of purulent inflammatory diseases in FJR.

Table № 3.

Frequency of sowing of the main types of aerobes and facultative anaerobes from the pus of patients with various forms of purulent-inflammatory diseases

The main types of aerobes and facultative anaerobes	**The number of crops studied**		**Power reliability - nosti**
	In abs. figures	In % of the total number of aerobes and facultative anaerobes ых	
S. aureus	26	22,8	P<0,01
S.epidermidis	49	43,0	P<0,01
S.pyogenes	18	15,8	P<0,05
S.faecalis	7	6,1	P>0,05
All others, including gram-negative sticks	14	12,3	P>0,05
Total studied aerobes and facultative anaerobes	114	100	

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From the results shown in Table № 3, the data can be seen , that the frequency inoculation of total aerobes and facultative anaerobes cultures we studied most often sown pus from the investigated patients, cutaneous aureus, skin staphylococcus, golden staphylococcus and pyogenic streptococcus, which were sown respectively 43.0% [P <0.01], 22.8% [P <0.05]and 15.8% [P <0.05].

It should also be noted that gram-negative bacilli, including in non - clostridial gram-negative bacteria , were sown from the pus of patients , and enterococci from cocci, which amounted to 12.3% and 6.1% of all selected cultures, respectively , but these indicators were not reliable [P > 0.05].

In this case, the contents of the pathological process was not detected, mushrooms and in particular kinds of Candida . An analysis of bacteriological studies showed that with the development of acute purulent inflammatory processes, 90-100% are anaerobic microflora infections.

Conclusions

Thus, we can conclude that the results of our research confirm the thesis of some authors "the growing role of CNS in the occurrence of chronic inflammatory diseases", although compared to known pathogens and in particular Straphylococcus aureus , Streptococcus pyogenes do not possess the ability to form factors of pathogenicity and virulence and the development is dominated obligation microorganisms of which 90-100% are obligate microorganisms.

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