

and its subsequent complications. Clinical manifestation of purulent sinusitis in patients with diabetes is characterized by a long and sluggish course, the involvement of other paranasal sinuses in the process, atypical X-ray picture and the frequent development of complications - rhinogenic meningitis and phlegmon of the orbit. In the blood of these patients, in contrast to patients without diabetes, there is an increase in the relative and absolute number of stab and segmented neutrophils, a sharp increase in ESR. The disease proceeds in the background of pronounced changes in the immune status, which affect all the links of immunity, including a significant decrease in phagocytosis indicators and an increase in the content of circulating immune complexes of small size.

Thus, the course of purulent-inflammatory diseases of the upper respiratory tract in diabetes mellitus is peculiar and atypical, often leads to the development of formidable complications and even death. Effective treatment of foci of inflammation in the ENT organs in the background of diabetes mellitus decompensation is practically impossible. Particular attention should be paid to the study of the etiopathogenetic mechanisms of the development of diseases of the ENT organs in patients with diabetes with the development of new therapeutic algorithms. It means that only close cooperation of two specialists - an otolaryngologist and an endocrinologist will help maintain health and prolong the patient's life.

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## **CHARACTERISTICS OF MICROBIOTA OF THE UPPER JAW IN CHRONIC SINUSITIS IN PATIENTS WITH TYPE 1 DIABETES MELLITUS**

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The aim of the study was to determine the qualitative and quantitative composition of the microbiota in patients with chronic purulent maxillary sinusitis with type 1 diabetes mellitus. Bacteriological and micrological methods were used to determine the qualitative and quantitative composition of the microbiota of the biotope of the maxillary sinus cavity in 50 patients with chronic purulent maxillary sinusitis with type 1 diabetes mellitus and 37 patients with chronic purulent maxillary sinusitis of the same age without concomitant pathology.

In the contents of the cavity of the maxillary sinuses of patients with chronic purulent maxillary sinusitis, combined with type 1 diabetes, 175 strains of different species of microorganisms belonging to 24 different taxonomic groups were isolated and identified, which in the biotope form different qualitative microbial associations consisting of 3 of different species in 58% of patients, of 4 species in 34.0% and of five different taxa - in 8.0% of patients.

Chronic purulent maxillary sinusitis in patients with type 1 diabetes disturbs microbial associations. In patients with chronic purulent maxillary sinusitis, the number of associations consisting of 3 species increases 2.7 times, but the number of associations consisting of 4 species of microorganisms decreases by 11.76%. The number of associations consisting of 5 species in patients decreases by 3.5 times.

Among the most numerous associations consisting of 3 species of pathogenic and conditionally pathogenic autochthonous facultative microorganisms, the associations of the following representatives are more common: *M. catarrhalis*, *S. aureus* and *Bacteroides* spp. ; *Prevotella* spp., *S. viridans* and *S. salivarius*; *M. catarrhalis*, *Prevotella* spp. and *S. epidermitis*; *H. influenzae*, *Prevotella* spp. and *S. epidermitis*.

Associations consisting of 4 species were found in 34% of patients and consisted of *S. pneumoniae*, *M. catarrhalis*, *S. pyogenes*, *Fusobacterium* spp; *S. pneumoniae*, *E. coli*, *S. aureus* and *Candida* spp. ; *S. pneumoniae*, *E. coli* Hly +, *S. viridans* and *Candida* spp.

In patients with chronic purulent maxillary sinusitis combined with severe type 1 diabetes, there were associations consisting of *S. pneumoniae*, *M. catarrhalis*, *Candida* spp. and *S. epidermitis*; *S. pneumoniae*, *M. catarrhalis*, *S. pyogenes*, *S. epidermitis*; *Bacteroides* spp., *H. influenzae*, *S. pyogenes*, *Enterobacter* spp.; *Bacteroides* spp., *H. influenzae*, *S. pyogenes*, *Candida*

spp. The above may indicate the influence of not only an etiological agent, but also a certain association of microorganisms on the severity of maxillary sinusitis combined with type 1 diabetes.

Associations of microorganisms consisting of 5 species were found in patients with chronic purulent maxillary sinusitis combined with severe type 1 diabetes mellitus. Their composition was different, but the pathogen *S. pneumoniae* in a high population level, opportunistic obligate anaerobic bacteria of the genus *Bacteroides* and *Prevotella*, *Fusobacterium*, streptococci and *Staphylococcus aureus* were isolated and identified.

Thus, according to the Berger-Parker index of constancy and dominance, the dominant pathogens of chronic inflammation in the maxillary sinuses are *S. pneumoniae*, *H. influenzae*, *M. catarrhalis*. Other bacteria (*S. pyogenes*, *S. aureus*, *E. coli* Hly +, *B. fragilis*) are additional or accidental (*E. coli* Hly +, *B. fragilis*) pathogens. All major pathogens persist in the habitat in association. Microorganisms, depending on their role in the normobiocenosis, can inhibit the pathogenetic activity of the leading pathogen or, conversely, activate its pathogenetic role, which must be taken into account when choosing treatment tactics.

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( . ., 2015; . ., 2018).

(Shaikh N, 2019; Hanne A. Boon, 2021).

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1,6 – 2,7 ;  
( 44,9%),  
(20,0-27,7%);  
*Enterobacteriaceae* – *E. coli* (46,8-81,5%)  
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» ;  
: ( *Pseudomonas aeruginosa*, *Enterococci*) 45-60% 85-98%;  
*The Diagnosis of Urinary Tract infection in Young children*  
(DUTY) ; *Gorelick Scale score*  
UTicalc (<https://uticalc.pitt.edu>)  
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