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## PURULENT-INFLAMMATORY DISEASES OF THE MAXILLOFACIAL REGION IN PATIENTS WITH VARIOUS CHRONIC DISEASES

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**Abstract** In the practice of doctors of all specialties the proportion of patients suffering from combined diseases (polymorbide states) is steadily increasing. The sphere of dentistry and maxillofacial surgery is not an exception. The paper considers the main etiopathogenetic mechanisms in the combination of purulent-inflammatory diseases of the maxillofacial region (PID MFR) with somatic pathology (synthropy). Data on the features of the combination of somatic diseases with PID MFR, the role of chronic stress, immunopathies, medico-social factors in the development of pathological processes in the oral cavity and surrounding tissues are summarized. The features of the course of PID MFR in the elderly and elderly patients with polymorbid conditions are shown; persons suffering from drug addiction and alcoholism with visceropathy. The analysis of approaches to the evaluation of the severity of PID MFR and their treatment is carried out. It is emphasized that in the clinic of maxillofacial surgery it is necessary to study complex somatic and mental pathology in a complex way (multidisciplinary principle) and to take into account the results in developing the tactics of patient management. Integral approach will fully realize the principle of personification of medical care.

**Keywords:** polymorbidity, purulent and inflammatory diseases of maxillofacial region, maxillofacial surgery, the principle of multidisciplinary

### Introduction

Polymorbidity (P) is currently becoming increasingly relevant due to the high prevalence, difficulty of diagnosis, differential diagnosis, treatment and rehabilitation. A number of significant problems also have to be solved by the doctor when providing care to patients with purulent-inflammatory diseases of the maxillofacial region (HW CHLO) against the background of multiple diseases. Most often, P is determined by chronic socially-related non-communicable diseases (CSDS): hypertension (HD), coronary heart disease (CHD), metabolic syndrome – a cluster that includes, in addition to the above-mentioned diseases, abdominal obesity, impaired carbohydrate tolerance/type 2 diabetes mellitus (DM2); chronic obstructive pulmonary disease (COPD), chronic cholecystitis, gallstone disease, certain forms of cancer, etc. In pathoanatomical practice, when discussing combined pathology, the concept of "background disease" is used, which, being etiologically unrelated to the main one, but being included in the general pathogenesis with the main disease, being one of the causes of its development, subsequently aggravates the course and contributes to the development of complications leading to a fatal outcome [1,5,7,9]. GVH of CHLO is a common pathology with high medical and social significance, since most of the patients are young people of working age who need active, sometimes quite expensive treatment in a hospital setting. High rates of morbidity with temporary disability, as well as mortality from dental diseases, are noted in the case of HW CHLO. Their most frequent forms are odontogenic sinusitis, abscesses and phlegmons, and jaw cysts (Goncharova, 2011). In the general structure of dental diseases, the frequency of HW of CHLO ranges from 55-65 % [10,11,18], and in the structure of acute acute respiratory diseases, CHLO reaches 69.5 % and currently there is a tendency to increase their specific weight [16,17,21,22]. The development of HW of CHLO largely depends on the premorbid background. Severe general somatic diseases significantly reduce the body's resistance to microorganisms due to a violation of the production of immunocompetent cells and humoral factors, hemodynamic and respiratory disorders, which in turn lead to a

deterioration in tissue trophism, intoxication, etc. And the addition of GW CHLO only worsens these homeokinesis disorders [31,32]. CHLO GVDS on the background of somatic pathology are not so much chronological comorbidity or dystopia [26,27,28], as syntropia – common etiopathogenetic features. mechanisms of development [20]. Background pathology (cardiovascular diseases (CVD) and diseases of the respiratory system, diabetes, kidney and digestive system diseases) is associated with more than 50 % of surgical complications of odontogenic infection [38]. S. V. Ermolenko et al. [2012] revealed background diseases in a quarter (25.7 %) of patients with odontogenic infection. severe odontogenic sepsis. At the same time, CVD (CHD, hypertension, atrial fibrillation) was observed in 14.3% of cases, 8.6 % – DM, mainly severe; one patient had systemic lupus erythematosus with chronic renal failure. It was shown that in such patients with preserved fat reserves, normal or increased body weight in 88.6% of cases, a decrease in the visceral protein pool with immunodeficiency was noted. In this regard, it becomes obvious that an important area of therapy is to provide the body with energy and plastic substrates, create conditions for the most effective assimilation and restoration of protein-carbohydrate-lipid metabolism. E. Yu. Leontieva et al. [2017] It was found that in 46-95% of patients of a dentist, dental pathology is comorbid. At the same time, a pronounced correlation was established between the number of dental diseases and the age of patients. The most common nosological forms are caries, periodontal diseases and periodontal tissues. Patients with combined dental pathology, especially against the background of somatic diseases, are at risk for the development of GW CHLO and require special attention of specialists. Serious problems arise with the development of HVD of CHLO, in particular against the background of CHD, especially in cases requiring surgical methods of treatment. Coronary artery bypass grafting, stenting and other methods of myocardial revascularization have become routine in many medical organizations today. Considerable success has also been achieved in the surgical treatment of heart defects and arrhythmias. After such surgical interventions, all patients are prescribed antiplatelet agents and/or anticoagulants for life. At the same time, performing surgical interventions for HW of CHLO requires changing the treatment program with these drugs, which may affect the course of the cardiological disease and lead to complications [11]. Patients with a cardiac surgery profile may develop inflammatory processes of various localization as a result of activation of chronic foci of infection, including odontogenic ones . Considerable difficulties arise when providing anaesthetic benefits to patients with HW of CHLO against the background of P. General anaesthesia is one of the most difficult sections of anaesthesiology. Methods of anesthesia in maxillofacial surgery are the only branch of anesthesiology where the method of anesthesia depends not only on objective, but also on subjective factors, such as the volume of surgery and the postoperative period. When choosing the method of intubation in such cases, the main actor is the patient [5]. The degree of P increases with age. The relationship between somatic and dental pathology in elderly and senile people is widely discussed in the literature [6]. Development of odontogenic phlegmon in patients aged 60-75 years with concomitant chronic diseases, even in a state of prolonged remission, is accompanied by disorders in the system of local and general immunity: pronounced stimulation of the innate and humoral links of local immunity of the oral cavity against the background of signs of immunodeficiency of the T-cell link of immunity in the form of hypercytokinemia and T-lymphocytopenia in the systemic bloodstream, increased CIC content, dyscomplementenemia. Involutive changes in the organs of the maxillofacial region, in turn, also contribute to the development of GVHD. In particular, a common metabolic disease or an involutive state of the bone system is osteoporosis, characterized by a decrease in bone mass per unit volume and a violation of the microarchitectonics of bone tissue, leading to an increase in its fragility. Osteoporosis of the jaw occurs in the earliest stages of periodontal disease. To date, sufficient information has been accumulated on changes in the CHLO bone system in DM. According to A.V. Goncharova (2011), more than 14% of patients with CHLO are over 60 years of age. They

usually have a severe concomitant pathology that delays the process of complete convalescence and rehabilitation. The most common types of concomitant diseases are hypertension (35 %), CHD (23%), gastrointestinal diseases (23%), type 2 diabetes and thyroid diseases (14%), as well as allergic diseases (5%). It was noted that 13 % of patients have two or more concomitant diseases. In patients with severe concomitant pathology, various neoplasms, jaw cysts, and chronic periodontitis were more often observed. In the pathogenesis of the inflammatory process in patients with phlegmon of the upper respiratory tract, disorders in the immune system and antioxidant protection that correlate with each other play an important role and aggravate the pathological process, forming a "vicious circle" and a syndrome of mutual burdening. Antioxidant and immune imbalances in CHLO are closely associated with the degree of endogenous intoxication associated with the entry into the blood of fractions of endotoxins of lysosomal origin and polypeptides of medium molecular weight with an intensity that significantly affects the course and prognosis [30,33,34]. Endogenous intoxication, in turn, leads to decompensation of disorders of vital organs and systems in severe somatic diseases and contributes to an unfavorable outcome (2017) found that two-thirds of patients (68.4%) suffered from background pathology in sepsis associated with HW of CHLO. At the same time, CVD and respiratory diseases were most common (more than 60%), and diabetes mellitus, mainly of the second type, was less common (about 20%). Background diseases of the digestive system were represented by chronic viral and toxic hepatitis, a disease of the operated stomach, and alcoholic illness. There were isolated cases of chronic renal failure requiring hemodialysis (2.4 %) [25]. Patients with diseases of the oral cavity on the background of somatic pathology are at risk of developing odontogenic sepsis. The concept of "oral sepsis" was formulated by W. Hunter as early as 1910 [19,32]. Currently, it is shown that the state of non-specific resistance of oral tissues and the immune system of cardiac surgery patients (operations of coronary artery bypass grafting, percutaneous coronary intervention, artificial heart valve replacement or pacemaker implantation) depends on the autosensitization of the body, which increases with the deterioration of the oral cavity and initiates endogenous intoxication of the body, to determine the severity of which the calculation of the leukocyte index is proposed intoxication and body resistance index. In case of inflammation, these indices reflect the level of intoxication with autolysis products of CHLO tissues (Velichko et al., 2011). To develop treatment tactics, it is important to assess the severity of the patient's GW CHLO. Many authors have attempted to assess the severity of the general condition of patients with GVH clinically, since the lack of reliable diagnostic and prognostic tests makes it difficult to assess the severity of the condition of patients [11, 12, 14]. However, most of them were mainly limited to the study of indicators that directly characterize the course of the inflammatory process, meanwhile, in order to increase the objectivity of assessing the severity of CHLO GVHD and predicting the outcome, it is also necessary to study indicators of the state of vital organs and systems of the patient's body. The solution to this problem was found in the work of M. N. Morozova [14], who proposed a method for assessing the severity of patients with odontogenic phlegmons based on multivariate factor analysis and taking into account somatic diseases. The author has identified a link between the severe course of HV CHLO in patients with such diseases as cirrhosis of the liver, CHD, severe COPD, DM, chronic renal failure, severe drug and alcohol dependence, immunodeficiency formed as a result of a recent severe purulent process (intestinal obstruction, peritonitis, pyelonephritis, etc.). substance abuse also occurs, including damage to various structures of the oral cavity, ranging from complicated caries to odontogenic abscesses and phlegmon. It has been shown, in particular, that the acute respiratory diseases of opiate addiction are characterized by a chronic sluggish course, diffuse or diffuse nature, slow relief of acute events, an increase in the frequency and severity of complications, painlessness and absence of complaints, and low efficiency of generally accepted therapeutic measures. Patients with alcoholic visceropathy are also at risk for the

development of GVH CHLO. Chronic stress is a widespread risk factor for many diseases. Numerous studies have proven its role in the development of pathology of the CHLO organs. Currently, mental disorders of varying severity are often found in the practice of doctors, including dentists. In this regard, the psychoemotional state of patients with polymorbid diseases It is of great importance in the course of treatment of acute respiratory diseases and should be studied and taken into account when choosing tactics. All patients with pathologies of CHLO on the background of psychosomatic pathology (mental disorders) need to be diagnosed with mental health [21]. However, often due to the complexity of existing methods and the lack of time, especially during outpatient observation, it cannot be performed [22]. There is reason to believe that the combination of HW of CHLO with P more often leads to a fatal outcome. The immediate cause of death is intoxication. According to K. Z. Shalabaeva et al. (2012), there are no methods to objectively assess, in particular, the level of CNS intoxication and the severity of the condition in patients with this pathology [37,38]. Apparently, premorbid background (atherosclerotic lesions of the brain vessels, consequences of cardiovascular events (strokes)) it plays a significant role in this process. The presence of one or more background diseases aggravates the course of the inflammatory process, creates opportunities for generalization of infection, the development of severe sepsis and organ failure [21,35]. Socio-economic and psychological aspects, as well as the possibility of receiving timely and adequate highly qualified medical care, play an important role in the effectiveness of treatment of acute respiratory diseases. Quite often, patients with HW of CHLO turn for qualified help late, do not fulfill their prescriptions, receive inadequately prescribed therapy, which leads to an increase in the frequency of relapses of diseases, their long course, and the occurrence of severe purulent-septic complications. As a result, patients lose their ability to work for a long time. At the same time, the course of CHD is also aggravated. A vicious circle is forming. Among the reasons for unsatisfactory results of treatment of patients with HW CHLO, the following are distinguished: 1) inability to perform treatment prescribed by a doctor for financial reasons; 2) uncritical attitude of patients to their state of health, due to a low general cultural level of knowledge. Patients often seek medical help 3-5 days after the onset of the disease with late stages of the inflammatory process. This is evidenced by the fact that 30% of patients are hospitalized in the department of maxillofacial surgery with a referral for hospitalization 2-3 days ago; 3) unsatisfactory organization of dental preventive examinations leads to untimely sanitation, the development of odontogenic infection and odontogenic diseases. diseases of the maxillofacial region; 4) independent (or under the influence of the environment) correction of patients' prescribed medical treatment by a doctor with the transition to alternative medicine or herbal medicine (alcohol-vinegar and warming oil compresses, urinotherapy, food products (garlic on the forearm), etc.); 5) treatment of patients to all psychics, traditional healers, clairvoyants, etc.; 6) insufficient awareness of patients about the state of health, untimely correction of the general somatic status of patients; 7) insufficient knowledge of the etiology, regularities of the clinical course, features of diagnosis and treatment of inflammatory diseases of the maxillofacial region; 8) uncontrolled use of thermal procedures for inflammatory diseases of the maxillofacial region. diseases in outpatient settings, often leading to the spread of the process and the development of various complications; 9) interruption of the course of treatment in outpatient settings and going to work; 10) availability of medicines in the pharmacy network, patients' trust in advertising, widespread self-and mutual treatment, which leads to an erased clinic and an atypical course of the inflammatory process, including due to the emergence of antibiotic-resistant forms of microorganisms; 11) a decrease in the quality of life of the population, a deterioration in the level and quality of personal hygiene, contributing to a decrease in general resistance and non-specific immunity; Lokes, 2014. All these factors lead to late treatment for qualified help and a severe course of CHLO hot water supply. Meanwhile, it has been shown that when a patient is admitted to a hospital in a serious condition, the mortality rate is 4.1%, and in an extremely

serious condition-61.7 %. [21]. Analyzing the reasons for the increase in the number of patients with inflammatory processes of the face and neck, including those developing against the background of severe somatic pathology, a number of authors [18] distinguish the most common ones: the increasing use of corticosteroid and immunosuppressive drugs, the unsystematic use of antimicrobial drugs, features of demographic processes, the emergence of more aggressive and antibiotic-resistant microorganisms, errors and errors in outpatient and inpatient treatment of localized forms of odontogenic purulent processes. The presence of combined general somatic pathology in patients with CHLO requires a multidisciplinary approach to their treatment and rehabilitation. It was shown that in the process of rehabilitation of patients in the conditions of the medical and social rehabilitation office of patients with CHLO pathology on the basis of the dental department of the polyclinic, 68 % of patients needed consultations of narrow specialists (neurologist, therapist, optometrist, otorhinolaryngologist, allergist, endocrinologist, cardiologist, etc.). At the same time, 25% of patients were observed by two or more specialists [22]. In the search for effective methods of treatment of CHLO, most researchers focus on normalizing the immune status of patients and improving surgical techniques. The use of indigenous *Lactobacillus* strains for the creation of new probiotics seems to be a promising method for stabilizing the normoflora of the oral cavity and treating acute respiratory infections. The ability of these lactobacilli to form a biofilm and exhibit coagulating activity against *S. aureus*, *C. albicans*, *P. aeruginosa*, *B. subtilis* (Chervinets et al., 2012). The high efficiency of using medical ozone in the basic treatment of patients of older age groups with sluggish HPV diseases has been shown, which makes it possible to more fully and quickly achieve normalization of indicators of non-specific body resistance, T-cell immunity, as well as reduce the time of hospitalization and the number of complications [32,35,36]. In a preclinical study, it was found that complex therapy, including local irrigation of postoperative wounds with sodium hypochlorite solution in combination with ultraviolet blood irradiation, has the most favorable effect on the course of the wound process and contributes more to the normalization of endogenous intoxication indicators [37,38].

## Conclusion

A pronounced tendency to increase the proportion of patients with polymorbid conditions forces specialists in various fields to implement a comprehensive approach to their treatment. The development of HW CHLO on the background of somatic and psychosomatic pathology is often not only chronological comorbidity, but also has the character of syntropy. Currently, a number of methods for assessing P have been developed and clinically tested. High efficiency has been shown, in particular, by the method of comprehensive assessment of P, based on polyparametric analysis using a computer program and intended primarily for screening in outpatient settings. This method allows you to calculate the polymorbidity index and use it to predict the course of diseases and assess the risk of surgical intervention. The polymorbidity of patients with acute respiratory diseases significantly complicates diagnosis, increases the risk of complications during medical and surgical treatment, and increases the duration of stay in the hospital and rehabilitation of patients. As a result, the economic costs of providing care to this category of patients and the economic damage associated with temporary and permanent disability significantly increase. A comprehensive study of the problem of the development of HW of CHLO against the background of multiple somatic and mental pathology needs further continuation. In addition to dentists and surgeons of maxillofacial surgery departments, internists, immunologists, psychiatrists, clinical pharmacologists and doctors of other specialties should also participate in this work.

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