CURRENT APPROACHES TO DIAGNOSIS AND TREATMENT OF DISEASES OF THE NOSE AND PARANASAL SINUSES IN PATIENTS WITH MYOCARDITIS

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СОВРЕМЕННЫЙ ПОДХОД К ДИГАНОСТИКЕ И ЛЕЧЕНИЮ ЗАБОЛЕВАНИЙ НОСА И ОКОЛОНОСОВЫХ ПАЗУХ У БОЛЬНЫХ С МИОКАРДИТАМИ

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Abstract: *according to statistics, in recent years the incidence of myocarditis is approximately 1-10 cases per 100 thousand. Man. At least, 1-5% of patients with acute viral infection occurs myocardial involvement. Indicators prevalence of myocarditis vary widely due to the large number of sub-clinical forms of the disease and rarely used in routine cardiology practice "gold standard" diagnostic - endomyocardial biopsy (EMB). Myocarditis, confirmed by EMB data, has led to non-ischemic dilated cardiomyopathy (DCM) in 9-16% of cases in the adult population, and in 46% of cases of dilated cardiomyopathy in children. In 30% of cases of histologically confirmed myocarditis outcome is the development of dilated cardiomyopathy associated with a poor prognosis. Often for myocarditis is oligosymptomatic or asymptomatic. Men myocarditis occurs more frequently than women.*

According to pathogenetic basis of myocarditis divided into infectious, infectious-toxic, allergic (immune), toxic and allergic. Patients with diseases of the nose and paranasal sinuses myocarditis occurs mainly infectious and infectious-toxic. By the nature of the flow recovered acute (up to 2 months), subacute (2-6 months), abortifacient, recurrent, chronic (more than 6 months sclerotic) myocarditis. As the prevalence of pathological process in the heart muscle, myocarditis divided (rather arbitrary) in the focal and diffuse. According to the severity of clinical myocarditis divided into oligosymptomatic, pseudo coronary, decompensation (acute or chronic heart failure), arrhythmic, embolic, pseudo valve mixed. After exposure to any etiologic agent in the myocardium occurs inflammatory infiltrate consisting mainly of lymphocytes inflammatory infiltrate but also may include neutrophils, eosinophils, macrophages. The inflammatory process involves the interstitial tissue of the heart, small vessels, myocardiocytes, disturbances are the consequence of systolic and / or diastolic function of the heart, conduction and rhythm, leading to a further development of severe heart failure, dilated cardiomyopathy. The clinical picture of myocarditis has no specific symptoms. Most often, the picture appears within one to two weeks from the onset of infection. In 20% of cases of myocarditis may be asymptomatic. In patients with myocarditis amid nose and paranasal sinuses diseases often occur pain syndrome, inflammatory syndrome, myocardial injury syndrome, congestive heart failure syndrome. Pain syndrome includes chest pain aching, stabbing, compressive nature, short or long, of varying intensity, sometimes radiating to the left shoulder. Inflammatory syndrome occurs with fever, general intoxication in the form of weakness, weakness, tachycardia, sweating, arthralgia, myalgia, asthenia.

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Diagnosis of myocarditis in patients with diseases of the nose and paranasal sinuses consist of conventional laboratory and instrumental methods that are not specific for this disease. In the peripheral blood can detect changes in the form of leukocytosis or leukopenia, leukocyte shift left, eosinophilia, increased erythrocyte sedimentation rate, the appearance of C-reactive protein, which may be a sign of inflammation in the body.

Аннотация**:** *согласно статистическим данным, за последние годы частота развития миокардитов составляет приблизительно 1–10 случаев на 100 тыс. человек. Как минимум, у 1–5% пациентов с острой вирусной инфекцией наблюдается вовлечение в процесс миокарда. Показатели распространенности миокардитов сильно варьируют по причине большого числа субклинических форм заболевания и редкого использования в рутинной кардиологической практике «золотого стандарта» диагностики — эндомиокардиальной биопсии (ЭМБ). Миокардит, подтвержденный данными ЭМБ, стал причиной неишемической дилатационной кардиомиопатии (ДКМП) в 9–16% случаев во взрослой популяции, и в 46% случаев ДКМП у детей. В 30% случаев исходом гистологически подтвержденного миокардита является развитие ДКМП, ассоциированной с плохим прогнозом. Часто течение миокардита бывает малосимптомным или бессимптомным. У мужчин миокардит возникает чаще, чем у женщин.*

По патогенетическому признаку миокардиты делят на инфекционные, инфекционно-токсические, аллергические (иммунные), токсико-аллергические. У больных с заболеваниями носа и околоносовых пазух миокардит возникает в основном инфекционные и инфекционно-токсические. По характеру течения выделяют острые (до 2 мес.), подострые (2–6 мес.), абортивные, рецидивирующие, хронические (скрытотекущие более 6 мес.) миокардиты. По распространенности патологического процесса в мышце сердца миокардиты подразделяются (достаточно условно) на очаговые и диффузные. По выраженности клинической картины миокардиты делят на малосимптомный, псевдокоронарный, декомпенсационный (острая или хроническая сердечная недостаточность), аритмический, тромбоэмболический, псевдоклапанный, смешанный. После воздействия какого-либо этиологического агента в миокарде возникает воспалительный инфильтрат, состоящий преимущественно из лимфоцитов, но воспалительный инфильтрат может содержать также нейтрофилы, эозинофилы, макрофаги. В воспалительный процесс вовлекаются интерстициальная ткань сердца, мелкие сосуды, миокардиоциты, следствием чего являются нарушения систолической и/или диастолической функции сердца, ритма и проводимости, приводящие в дальнейшем к развитию тяжелой сердечной недостаточности, дилатационной кардиомиопатии. Клиническая картина миокардитов не имеет специфических симптомов. Чаще всего картина проявляется через одну-две недели от начала инфекции. В 20% случаев миокардит может протекать бессимптомно. У больных с миокардитами на фоне заболеваний носа и околоносовых пазух часто возникают болевой синдром, воспалительный синдром, синдром поражения миокарда, синдром сердечной недостаточности. Болевой синдром включает боль за грудиной ноющего, колющего, сжимающего характера, кратковременную или длительную, различной интенсивности, иногда с иррадиацией в левое плечо. Воспалительный синдром протекает с повышением температуры тела, общая интоксикация в виде слабости, адинамии, тахикардии, потливости, артралгии, миалгии, астенизации.

У больных с миокардитами на фоне заболеваний носа и околоносовых пазух часто возникают болевой синдром, воспалительный синдром, синдром поражения миокарда, синдром сердечной недостаточности. Болевой синдром включает боль за грудиной ноющего, колющего, сжимающего характера, кратковременная или длительная, различной интенсивности, иногда с иррадиацией в левое плечо. Воспалительный синдром протекает с повышением температуры тела, общая интоксикация в виде слабости, адинамии, тахикардии, потливости, артралгии, миалгии, астенизации. При синдроме поражения миокарда определяется тахикардия, нарушения ритма, сердечная недостаточность, ослабление I тона, появление III, IV тонов сердца, увеличение размеров сердца, повышение активности ферментов АсАТ, ЛДГ, ЛДГ1, МВ КФК, тропонинов. Синдром сердечной недостаточности характеризуется выраженностью клинических признаков, что зависит от объема поражения миокарда левожелудочковая недостаточность — по типу одышки различной степени интенсивности, положение ортопноэ, правожелудочковая недостаточность — набухание шейных вен, отеки, гепатомегалия, признаки застоя в легких, систолический шум у основания мечевидного отростка.

Диагностика миокардита у больных с заболеваниями носа и околоносовых пазух состоит из общепринятых лабораторных и инструментальных методов исследования, которые не являются специфичными для данного заболевания. В периферической крови можно обнаружить изменения в виде лейкоцитоза или лейкопении, сдвига лейкоцитарной формулы влево, эозинофилии, увеличения СОЭ, появление С-реактивного белка, что может быть признаком воспаления в организме.

Keywords: *myocarditis, endomyocardiac, biopsy, dilatation, cardiomyopathy.*
Ключевые слова: *миокардит, эндомиокард, биопсия, дилатация, кардиомиопатия.*

Currently, the practice of a physician are common inflammatory diseases of the nose and paranasal sinuses in patients with myocarditis. In recent years there has been a high incidence of myocarditis in many countries around the world. Thus, according to some foreign researchers myocarditis make up 20-30% of all heart disease noncoronary (Kawai C., 1999; Mason J. W., 2003)[1]. In acute viral infections involving the myocardium in the pathological process occurs in 10% of cases (Dennert R. et al., 2008). It should be noted that in the world has yet to obtain objective data on the exact frequency of detection of myocarditis. This is primarily due to the lack of sensitivity of diagnostic methods and the relatively recent use of endomyocardial biopsy combined with immunohistochemistry and polymerase chain reaction (Maisch B. et al, 2000; Kovalenko V. N., 2008). One of the causes of myocarditis can be considered inflammatory diseases of the nose and paranasal sinuses. In patients with myocarditis related inflammatory diseases of the nose and paranasal sinuses occurs in 15-20% of cases (V. N. Kovalenko, 2008).

Particular attention in recent years given to clarifying the exact etiology of myocarditis, because of this depends largely on the further conduct of the patient and the success of therapeutic interventions (Dennert R. etal., 2008) [2]. Many common pathogens are able to have a direct or indirect damaging effect on the heart muscle. The most common cause of acute myocarditis (approximately 50%) are viruses (Kuhl U. et al., 2005a, b). The nature of viruses that can cause myocardial damage, is diverse. So, after being hit by viruses in the bloodstream can be fixed directly on cardiomyocytes induce cell apoptosis. Joining them to immunocompetent blood cells causes the production of lymphocytes of cytokines, including tumor necrosis factor and soluble surface apoptotic factors play a

major role in the destruction of myocardial cells. In view of the above, to examine the relationship of inflammatory diseases of the nose and paranasal sinuses, and myocarditis is relevant [3].

The defeat of the myocardium in infectious myocarditis can be a consequence of both the direct infiltration of the infectious agent in the myocardium, exposure to toxins, destruction of small coronary arteries with development coronarhitis causing coronarogen myocardial changes, and the result of occurrence of immunopathological reactions (V. M. Kovalenko et al., 2001; Dennert R. et al., 2008)[4]. According to recent studies crucial for the development of viral myocarditis are cardiotrops and cardiovirulent (ability to cause inflammation of the myocardium) virus strain, so the disease only occurs when the myocardium gets cardiovirulent virus strain (V. N. Kovalenko, 2004; Takeda N., 2003). It is now known that cardiovirulent is encoded trait mapped portions of the nucleic acids, mutation or deletion which dramatically weakens cardiovirulent virus (Dennert R. etal, 2008; Elliott P. etal, 2008.)[5]. It also remains unclear why developing myocarditis, since many cardiotropic viruses that cause myocarditis (including adenovirus, enterovirus, Epstein - Barr virus, herpes virus 6, parvovirus B19, cytomegalovirus) in> 90% of the population usually cause acute respiratory disease, but involvement heart muscle disease process does not occur. It is expected that the development of myocarditis and progression of cardiac dysfunction requires a certain genetic predisposition to disorders of immune regulation against the background of the damaging effect of viruses.

Diagnosis of myocarditis is one of the most difficult tasks of the modern practice of medicine (Dennert R. etal., 2008). Recent studies have shown that the determination of the troponin I and troponin T is a more sensitive method for the diagnosis of myocardial damage in patients with myocarditis compared to detection in the blood of specific enzymes in the first MB-CK and LDG1 and CK, AST, ALT (Okazaki T. et al., 2003) [6]. To date, one of the most informative and accurate laboratory methods in the diagnosis of myocarditis is endomyocardial biopsy (EMB). Timely EMB is necessary because "there are good reasons to believe that the results could have a significant impact on the effectiveness of subsequent treatment strategy» (Cooper L. T. et al., 2007). Opinion about the dangers of this study is rather misleading, as different complications during the EMB only noted in 0,06-2,6% of cases (V. N. Kovalenko, 2004). To date, debated the optimal time period allotted for taking EMB [7]. There is a common conservative approach when clinicians are waiting for at least 2 days; it is associated with high rates of spontaneous recovery (D'Ambrosio A. etal, 2001;. Mason J.W., 2003). In the case of progressive cardiac dysfunction is necessary to urgently conduct an EMB immediately after coronary angiography, if the latter did not identify hemodynamically significant stenoses of the coronary arteries (Cooper L. T. etal., 2007). Currently the gold standard for establishing the diagnosis "myocarditis" is EMB analysis which must include light microscopy combined with immunohistological examination of biopsy and application of molecular biological techniques: polymerase chain reaction (PCR), hybridization in-situ (Baughman KL, 2006; Dennert R. etal., 2008). Using PCR identification possible endomyocardial biopsies viral genome that allows to differentiate autoimmune myocarditis and viral (Elliott P. etal., 2008) [8]. Viral myocarditis is characterized by the presence of intracardiac virus with signs of inflammation. The main histological features of myocarditis is the infiltration of the myocardium with degenerative changes of cardiomyocytes. Identify as vasculitis, violation tinkto- rial properties of cardiomyocytes, basophils, change the size and shape of the nuclei, perivascular and focal infiltrates in the stroma of lymphoid and histiocytic elements (Amosov E. N. 2000; Roitberg G. E., Strutynsky A. V. 2003). Among the instrumental importance of diagnostic methods have echocardiography (echocardiography), radioisotope scanning and contrast magnetic resonance imaging (MRI). When echocardiography in myocarditis may be identified signs of systolic and diastolic dysfunction of the left and right ventricles (Feldman A. M., McNamara D., 2000)[9]. Diastolic dysfunction of the right ventricle occurs later (Galderisi M., Mondillo S., 2007). Characteristically the absence of signs of myocardial hypertrophy (O'Connell J. B., 2003). Can register violations of segmental contractility of the heart wall, sometimes - intraventricular thrombus (Roitberg G. E., Strutynsky A. V. 2003; Galderisi M., 2007). For the diagnosis of autoimmune myocarditis in phase have a value such research methods as myocardial scintigraphy with 67Ga, 99Tc (Dennert R. etal., 2008). The use of MRI in conducting EMB helps implement sighting biopsy and significantly improve its diagnostic value. It should be noted that the data of laboratory and instrumental research methods do not always correspond to the clinical picture of the disease, because the differential diagnosis of myocarditis with other diseases of the heart muscle is often difficult [10].

Although there are modern diagnostic capabilities determination myocarditis, however, there is no single method of medical treatment.

Myocarditis is often accompanied by the development of heart failure, which requires the use of a standard symptomatic therapy including diuretics, β-blockers, ACE inhibitors, angiotensin II blockers (V.M. Kovalenko et al 2007;. Dennert R. et al, 2008.). Also requires monitoring and treatment of arrhythmias. Usually, symptomatic therapy provides a complete or partial regression of clinical manifestations of acute myocarditis. However, it is not always able to prevent the transition of acute myocarditis in autoimmune, and then in the chronic stage (D'Ambrosio A. etal., 2001)[11]. To prevent disease progression therapy for myocarditis should be aimed at leading pathogenetic mechanisms of myocarditis: virus mediated autoimmune destruction and alteration of cardiomyocytes. To influence these primary mechanisms of damage to the heart muscle must be a sufficient amount of data on the etiology and pathogenesis of the disease. In recent years, studies are actively conducted with the use of antiviral therapy for the treatment of myocarditis and cardiomyopathy at different stages of the disease (Liu P. etal, 2006;.. Elliott P. etal, 2008). The most promising approach to the treatment of acute myocarditis is currently immunomodulatory therapy, however, proved the feasibility of its application only in the case of the prevalence of autoimmune mechanisms of

myocardial damage (Dennert R. etal., 2008). When viral myocarditis immunosuppression[12], in contrast, increases viral replication in the myocardium, exacerbating the damage to the heart muscle (Elliott P. etal., 2008). The most frequently prescribed combination of prednisolone and azathioprine, which proved the effectiveness of patients with active inflammation in the myocardium (Wojnicz R. etal, 2001; Frustaci A., 2003). Separately should stay on immunomodulatory therapy with interferon beta-1b. The expediency of its use is shown in several international studies. Thus, the detected improvement in left ventricular function and increasing survival rates in patients with myocarditis, the interferon beta-1b, compared with another group of patients not receiving the immunomodulating therapy (Kuhl U. etal., 2003). In 2002, it launched a prospective, placebo-controlled randomized, multicenter study on the effect of interferon beta-1b in patients with chronic viral cardiomyopathy (Dennert R. etal., 2008). Thus, as follows from the data presented, the treatment of myocarditis are used at present symptomatic, immunosuppressive, immunomodulatory and antiviral therapy. The effectiveness of therapeutic measures, first of all, depends on the timing of diagnosis and determines etiological and pathogenetic features of the disease in each individual patient.

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