THE CONDITION OF INTRACARDIAC HEMODYNAMICS IN PATIENTS WITH RHEUMATIC FEVER AND CHRONIC RHEUMATIC HEART DISEASE

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Findings of inspection parameters of intracardiac dynamics at 51 patients with rheumatic heart defects in interrelation with activity of inflammatory process and character of a heart defect (25 sick mitral a heart disease, 26 sick aortal a heart defect) are given in this work.
The echocardiography was spent on the device "Toshiba SSH-40" (Japan), with use of recommendations American echocardiography society.
At comparison of parameters echocardiography at I and II degrees of activity at patients with aortal and mitral defects of the heart the most expressed changes are found out at II degree of activity of inflammatory process that confirms the influence of activity degree on parameters of central hemodynamics , and condition improvement - about adequacy of therapy.
Keywords: rheumatic fever; rheumatic heart disease; hemodynamic.

Many researchers consider a rheumatic fever (RF) as unique cardiovascular disease, which has not been enough studied yet [3; 5; 6].

In the last 15-20 years, the clinical picture of RF has undergone major changes. Many authors notice the rarity of severe course of rheumatic carditis, the decrease of fatalness and reduction of disease recurrence rate, the tendency of disease to transit into monosyndromic forms, the increase of few symptomic and latent variants of current and etc [4; 8].

In this connection, it is necessary to emphasize the importance of study instrumental methods (phonocardiography, echocardiography, dopplechocardiography) in early diagnostics of reumocarditis [1].

Carditis is the main sign of rheumatic process activity the expressiveness of which reflects a degree of inflammatory process activity. However, at the minimal activity of an inflammation or its absence by laboratory data, manifestation of carditis persists more often having a permanent current. Against a background of valvular affections rheumatic carditis can aggravate the intracardiac hemodynamics condition which has been connected with a degree of inflammation .activity.

The aim of research

To study the parameters of central hemodynamics in patients with rheumatic fever and chronic rheumatic heart disease against inflammatory process activity.

Material and methods

51 patients with RF and chronic rheumatic heart disease (RHD) have been investigated aged from 23 till 37 years, of 25 have been mitral heart failure, 26 - aortal heart failure.

Randomization made by the character of failure, parity of their components, and remoteness of disease and stage insufficiency blood circulation (IBC), when grouped by degree of activity.

Central hemodynamics was estimated according to echocardiography findings performed on « Toshiba SSH-40 » (Japan), equipped by electronic gauges with frequency of ultrasonic waves of 2,5-3,5 MHz, by a standard technique with use of American echocardiography association recommendations (ASA) [7].

The study made before treatment and after three-month treatment course. There measured the following parameters of heart structure: diameter of an aorta, disclosing of aortic valve, the cross-section size of left atrium at the end of diastole atrium, finite diastolic size of left ventricle (FDSLV), finite systolic size of the left ventricle (FSSLV), thickness of lateral wall of left ventricle in diastole (ThLWLV), thickness of ventricular septum in diastole (ThVSD).

The following parameters were counted against a background of the obtained data: finite- diastolic volume (FDV) and finite- systolic volume (FSV) of LV; Fraction of emission (FE); Fraction of reduction (FR); Shock volume - ShV = FDVLV -FSVLV, ml; Minute volume of blood - MVB = ShV* RHC, l/min. (rate of heart contractions - RHC); myocardium mass of LV (MMLV); Myocardium mass rate of LV (MMRLV).

Results and discussion

Table 1 noted the accurate difference between the parameters of the control and patients with rheumatic heart disease (RDH) and mitral (stenosis and failure) and aortal (stenosis and failure) heart defect. When grouped the patients with II stage of BF included. However, the change of parameters of central hemodynamics in RHD was established much earlier [2]. We analyzed the influence of inflammation activity on cardio gemodynamics. So, the parameters of the left atrium (LA) in mitral defect with II degree of activity were above 21,4%; FDR - 6,6%; FSS - on 17,3%; FDV - 16,0%; FSV - 48,3%; FE – was less 6%; FR - 8,2%; ThLWLV and ThVS practically did not differ; MMLV was above 9,1%. The parameters systolic arterial pressure (SAP) were above 3,9% at II stage of activity as well; diastolic arterial pressure (DAP) was less than 1,5%; RSC was above 14,7% in II stage of activity.

Table 1. Echocardiography parameters at patients mitral and aortal heart diseases with I and II degree of activity of an inflammation (M±m)

№	Parameters	Control (n=20)	Mitral disease		Aortal disease	
			act I (n=12)	act II (n=13)	act I (n=14)	act II (n=12)
1.	LA (cm)	3,08±0,06	3,45±0,04*	4,19±0,09*^	3,69±0,08*	3,86±0,09*
2.	FDS (cm)	5,02±0,07	5,75±0,05*	6,13±0,10*^	6,13±0,11*	7,18±0,14*^
3.	FSS (cm)	3,31±0,05	3,69±0,08*	4,33±0,12*^	4,10±0,12*	4,26±0,01*
4.	FDV (milliliter)	120,68±4,31	160,16±3,56*	185,82±7,09*^	190,64±6,05*	194,01±8,02*
5.	FSV (milliliter)	45,17±1,28	57,60±2,54*	85,42±6,12*^	78,18±4,36*	79,12±5,02*
6.	FE (%)	62,24±0,91	58,06±1,48*	54,53±1,44*	60,36±1,19	59,12±2,01
7.	FR (%)	33,71±0,68	34,25±0,91	31,45±0,79^	33,10±0,86	31,12±0,75*
8.	ThLWLV (cm)	0,90±0,02	1,14±0,01*	1,13±0,01*	1,21±0,02*	1,25±0,01*
9.	ThVSD (cm)	0,94±0,01	1,04±0,02*	1,05±0,01*	1,11±0,01*	1,16±0,01*^
10.	MMLV (g)	158,72±7,23	253,14±7,02	276,12±10,12*	309,05±8,76*	312,02±6,16*
11.	SAP (millimeter of mercury)	118,26±2,48	120,95±2,66	125,76±3,17	126,66±4,25	128,02±3,12*
12.	DAP (millimeter of mercury)	75,92±1,61	67,18±3,35*	66,20±3,35*	50,05±3,69*	50,01±2,14*
13.	RHC (min)	72,31±1,12	83,10±2,17*	95,31±3,31*^	86,68±2,81*	85,18±1,13*

The note: * P <0,05 - authentic distinction between parameters of the control and compared groups;
^P <0,05 - distinctions between parameters I and II degree of activity are authentic.

At comparison of parameters of Echocardiography at I and II stages of activity in patients with aortal heart defect (stenosis and failure) the differences in parameters of central hemodynamics were revealed as well. So in difference from I degree of inflammatory process activity, II degree of activity at aortal defect was characterized by more marked changes from FDS which was above 14,6%; FDV - 1,7%; MMLV - 0,9% whereas FR was below 5,9%; the other parameters of the big difference were not revealed. This circumstance still indicates the influence of a degree of inflammatory process activity on the parameters of central hemodynamics, the improvement of parameters can also testify the adequacy of therapy, which is important for the forecast of disease as a whole.

Thus, the shift of cardio dynamics parameters is more marked in RHD patients

with II degree of inflammatory process activity than in the ones with I degrees of inflammatory process activity .Therefore, the changes of parameters of central hemodynamics correlate with the activity of inflammation which can aggravate_BF. The hypertrophy and dilatation of LV develops at insufficiency of mitral and aortal valves when maintained adequate minute volume of blood. In conditions of a significant volumetric overload dilatation of LV starts to advance the rate of mass myocardium increase. At a microscopic level in this phase it has been observed the increase in distance among cardiomiocytes, development of myocardium sclerosis characterized for pathological simulation of LV [2].

As a rule, the rheumatic affection of mitral valve is marked in its adjusting affection. Prolonged rheumatic endocarditis leads to morphological changes of mitral valve: cusps get thicken, become rigid, grow together on comissures, tendinous fibers change, shorten. Echocardiography displays the dilatation of the left departments of heart, various directed diastolic movements of thickened mitral cusps and the absence of their systolic connection, which leads to mitral regurgitation.

In rheumatic aortal insufficiency, ECG observes destructive changes and incomplete connection of aorta valves accompanied by aortal regurgitation; increase of diastolic size of LV and LA and increase of ascending part and roots of aorta as well.

Thus, in softly marked RF and carditis the diagnostic value of ECG increases and is to carry out in dynamics in RHD, and in BF connection.

The given circumstance specifies once more to the influence of degree of inflammatory process activity on the parameters of central hemodynamics, the improvement of parameters can also testify about adequacy of therapy that is very important for the forecast of disease as a whole.

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