STRUCTURE OF SYMPTOMATIC HEART RHYTHM DISORDERS AND CONDUCTIONABNORMALITIES IN PREGNANT WOMEN

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Cardiovascular diseases are among most widespread extragenital diseases in pregnant women [7, 13, 17]. Heart rhythm and conduction disorders play significant role in cardiovascular pathologies during pregnancy period.

Spectrum of arrhythmias observable in pregnant women is quite wide (from isolated extrasystoles and up to complicated and serious rhythm disorders). In essence, from nosologic point of view, there is no difference between the spectrum of rhythm and conduction disorders in non-pregnant patients and pregnant ones. However pregnancy causes a number of physiologic alterations, resulting in development of prerequisites for arrhythmias manifestation and progression. [9,15,16,19, 23]

Frequency of appearance of heart rhythm and conduction disorders in pregnant women varies from 7 to 59% [15, 16]. Out of them, 20 to 44% of arrhythmias have functional genesis [6, 15] and often do not require pharmacotherapy. [5, 8].

Nonetheless, a number of authors consider that pregnancy complications (malignant gestoses, miscarriage, hypotrophies of fetus) appear much more frequently in women with heart rhythm and conduction disorders, even with functional genesis. [19]

Type and character of heart rhythm and conduction disorders, as well as frequency of their appearance during pregnancy materially depend on general physiological background. Frequency is substantially higher in women with structural heart diseases, some concomitant pathologies, as well as genetic conditions. [1,2, 4,10, 19].In case of absence of anatomic substance or geneticdisorder and "electric" abnormality of myocardium, rhythm disorders appear less frequently and usually are less severe. [12]

In case of absence of structural and genetic pathology,in women, who suffered heart rhythm and conduction disorders before pregnancy, development and aggravation of symptoms is quite frequently observed [15].

In particular, authors detected aggravation of symptoms of supraventricular tachycardia in 50% of cases, of atrial fibrillation in 52% of cases and of ventricular tachyarrhythmia in 27% of cases. [18,20,21].

Different authors provide quite different information about a structure of rhythm disorders during pregnancy, however the

majority of researchers agree that most frequently appearing rhythm disorders during pregnancy are monomorphic ventricular and supraventricular premature beats. Premature contractions and instable atrial tachycardia are detected in 50% of pregnant women according to data from D.Lefroi, D. Adamson(2007), while other authors suggest that from 8 to 40% pregnant women suffer from either premature contractions or instable tachycardia. Atrial fibrillation is detected in 2-3 women with uncomplicated anamnesis per 1000, while bradyarrhythmias are more seldom, 1 per 20000, and most frequently are interconnected with sinoatrial blockades, according to the same authors' data. CCCY, as well as AVblockadesare rarely detected in pregnant women. Life threatening heart rhythm disorders are registered even more seldom (VT, FV).

According to published data, severe heart rhythm disorders during pregnancy most frequently appear in structural heart pathology cases, electric instability of myocardium (often genetic), or extracardiac pathology leading to changes in excitability of myocardium. Many authors outline that in a large number of cases heart rhythm disorders during pregnancy pass asymptomatically and appear to be an accidental discovery.

Our study included women, who complained of a feeling of quickened pulse, intermissions and discomfort in heart area. Such selection may be the reason for certain differences between data extracted by the study and the one published earlier.

We examined 128 pregnant women with complains of a feeling of quickened pulse, or intermissions in heart functioning. The age ranged from 19 to 41 (average 30.5, st.dev. 4.69). Patients with structural lesions of heart, cardiomyopathies, systemic connective tissue disease anddiabetes were not included into the target group.

All women underwent complex examination, including but not limited to analysis of complaints, anamnesis, potential risk factors, ECG, 24-hour Holter monitoring, Echo-CG, blood tests (clinical test, biochemical analysis, coagulogramm, levels of free T3, T4, TTG, detection of anticardial antibodies and viral markers.

EXAMINATION RESULTS:

Out of 128 patients, who initiated a consultation with cardiologist due to quickened heart rate and intermissions in heart functioning, isolated sinus tachycardia of more than 100 heartbeats per minute was detected in 38%, sinus bradicardia in 12%, ventricular premature contraction in 45%, unstable ventricular tachycardia in 6%, isolated monomorphic UVES in 18%, atrial fibrillation in 3% of cases; 1 patent was detected an AV blockade of 3rd degree (with average integral levels of HR at 37–42 beats per minute); 4 patients were detected transient AV blockade of 1st and 2nd degree.

The majority of patients (n=80, average age 30.7, st.dev. 4.65) were detected heart rhythm disorders before pregnancy. They were included into the first group. Others were included into the second group. (n=48, average age 30.3, st.dev. 4.83)

There was no statistically significant age difference between the groups, as well as statistically significant differences in such factors as consumption of coffee, smoking habit, existence of chronic anxiety. The second group included statistically significantly more women with pregnancy caused by an extracorporeal fertilization (1 group n=1, (1%), second group n=11, (23%))

Diagnostically significant levels of antimiocardiac antibodies (IgG) were detected statistically significantly more frequently in the 1st group (n=34), comparing to the 2nd group (n=11). Despite it cannot serve a diagnostic criteria for diagnosing of postmiokarditichseky kardiosklerosis, and we had no possibility for verification of fibrosis areas because of particular features of these groups of patients, based on anamnesis, we may suppose the existence of postmiokarditichseky kardiosklerosisin majority of patients with diagnostically significant levels of antimiocardiac antibodies (n=21 (26%) out of the 1st group, n=5 (10%) out of the 2nd one).

Decreases in levels of TTG observed in 2 patients from group 2, at the same time their levels of T3 free and T4 free remained in the referential range. Others women from both groups showed TTG levels within referential range, however TTG levels in the first group were statistically insignificantly higher then in the second group. In each group patients with ventricular rhythm disorders (n=45) show higher levels of TTG (on average 1.28mUn\l, st. dev –0.34) then those with sinus tachycardia (n=38) (on average 0.9 mUn\l, st dev - 0.28), provided that both these levels do not fall out of referential range.

With regards to the structure of rhythm disorders in the examined groups, lighter forms of arrhythmias were detected in the second group, where sinus tachycardia prevailed (n=22, 46%).

Ventricular extrasystolia in the second group was of lower levels according to Lown scale (monomorphic ventricular extrasystolia with average daily number of ventricular extrasystolas (average daily number of ventricular extrasystolas 8967, st.dev - 4434), according to 24-hour Holter monitoring data, was detected in 12 women (25%) and only 4 women

(8%) were detected ventricular rhythm disorders of 4–5th levels according to Lown scale.

In the first group the most widespread type of arrhythmia was ventricular extrasystolia (n=41, 51%). Ventricular rhythm disorders of 4–5th level (Lown scale) were detected in 21% (n=17) of women. (average daily number of ventricular extrasystolas 20383, st.dev – 7764)

Bradiasystulic arrythmias were detected statistically significantly more frequently in the 1st group of patients: sinus bradicardia in 5 of patients in the 1nd group comparing to just 1 woman in the 2nd group. Atrioventricular blockades was detected in the 1st group only (AV blockII degree(Mobits2) in 4 women and AV block III degree in 1 women), as well as atrial fibrillation(was detected in 3 women from1st group).

Supraventricular extrasystolia was detected somewhat more frequently in women from the 2nd group (9 women (19%) compared to 10 woman (13%)).

Subjective evaluation of severity of clinical symptoms in both groups did not correlate with severity of rhythm disorders and conduction, but was attributable rather to some of the concomitant conditions.

Independently from objective severity of rhythm disorders and conduction, patients with concomitant arterial hypertension (8 women, 6%) and obesity (4 women, 3%) evaluated their conditions as more severe.

Patients with concomitant neurotic symptoms (anxiety, sleep disorders, nervous tension – 11 patients, 9%) had more complaints about intermittences in heart functioning and quickened heart rhythm. No statistically significant difference in subjective evaluation of condition between patients with rhythm disorders first detected before pregnancy and others was found.

As for discussion of the results of tool examination of patients, it is important to outline that ECG detected rhythm disorders in the 1st group in 8 women (17%) only, and in the 2nd group in 22 women (28%). Only 24-hour Holter monitoring allowed to detectrhythm and conduction disorders in majority of patients, including those who required a therapy.

Thus most frequent rhythm and conduction disorders among pregnant patients, complaining about quickened heartbeat, intermissions in heart functioning and explicit discomfort in heart area, are ventricular extrasystolia and sinus tachycardia. All pregnant women with such complaints are recommended to undergo a 24-hour Holter monitoring, regardless of ECG results.

More severe rhythm and conduction disorders are detected in the group of women with rhythm and conduction disorders detected before the pregnancy.

Changes in TTG level potentially affect appearance and severity of ventricular rhythm disorders, even in cases when the level does not fall out of the reference range, however this data requires further research and adjustment.

Given a high ratio of patients with ECF in the group of women with rhythm disorders discovered during pregnancy period (23% comparing to 1% in the other group), we consider interesting to continue the research of a role of different factors associated with ECF in development of rhythm and conduction disorders in pregnant patients.

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