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PECULIARITIES OF PSYCHOEMOTIONAL CONDITION OF PREGNANT WOMEN BEFORE FOETUS ECHOCARDIOGRAPHY AND PARENTS' REACTION TO THE PRENATAL DIAGNOSIS

ОСОБЕННОСТИ ПСИХОЭМОЦИОНАЛЬНОГО СОСТОЯНИЯ БЕРЕМЕННЫХ ПЕРЕД ЭХОКАРДИОГРАФИЧЕСКИМ ИССЛЕДОВАНИЕМ ПЛОДА И РЕАКЦИИ РОДИТЕЛЕЙ НА ПРЕНАТАЛЬНЫЙ ДИАГНОЗ

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Summary

Currently the scientific works focus on a significant maternal and paternal psychological distress after the prenatal diagnosis. The aim of our study was to determine the volume and goals of medical and psychological help to the pregnant women suspected of congenital heart disease in the foetus. The study was conducted at the state-run Scientific and Practical Medical Children's Cardiology and Cardiosurgery Center of the Ukrainian Health Ministry. 21 pregnant women before and after echocardiography foetus examination and 9 men were interviewed. It was found that 62% of pregnant women and 50% of husbands displayed subclinical and clinical levels of anxiety and depression before the echocardiography examination. The results highlighted that married couple

who learned the prenatal congenital heart disease diagnosis need the relevant follow up program. This program could include a consultation with the psychologist and the possible excess to enlarged database of educational materials.

Key words: prenatal diagnosis, congenital heart defect, anxiety, depression, medical and psychological assistance.

Реферат

Все чаще в литературе стали появляться работы посвященные значительному материнскому и отцовскому психологическому дистрессу после пренатального диагноза. Целью исследования было определение объемов и мишеней медико-психологической помощи беременным женщинам, у которых подозревается врожденный порок сердца у плода. Исследование проводилось на базе ГУ «Научно-практический медицинский центр детской кардиологии и кардиохирургии МЗ Украины». Было обследовано 21 беременную женщину до и после эхо-кардиографического исследования сердца плода и 9 мужчин (супругов). Было обнаружено, что у 62% беременных женщин и у 50% мужчин наблюдался субклинический и клинический уровень тревоги и депрессии перед эхо-кардиографическим обследованием. В статье отмечается, что супруги, получившие пренатальный диагноз ВВС у плода требует соответствующей сопроводительной программы, которая бы включала возможность консультации с психологом, а также возможность доступа к расширенной базе обучающих материалов.

Ключевые слова: пренатальный диагноз, врожденный порок сердца, тревога, депрессия, медико-психологическая помощь.

For the timely detection and prevention of unwanted outcome of inborn defects, the prenatal ultrasound diagnostics is recommended. It helps the physicians to timely plan the childbirth and treatment while the parents can step by step prepare themselves morally for this event, thus reducing the stress after the childbirth [1]. Currently the scientific works focus on a significant maternal and paternal psychological distress after the prenatal diagnosis [2,3]. The prenatal echocardiography diagnosis is reported to possibly initiate the increase of the anxiety level, the risk of depression and other psychoemotional disorders in the parents [4,5]. Some researchers inform that maternal anxiety influences the functioning of the vessels system of both the pregnant woman and the foetus [6,7]. The scientists emphasized that the parents displayed the highest distress level in the cases when the abnormality of the foetus was found between the 22^{nd} and 30^{th} weeks of pregnancy [8-10].

The *Brosig* study has found that the level of stress in women correlates with the severity of foetus congenital heart disease (CHD) [11]. There are some reports of husbands' concerns during the prenatal echocardiography examination that correlate with the severity of the CHD [12]. At the same time, it was found that the husbands who had learned about the CHD prenatally were less affected by the stress and remained more optimistic in the after operation period than those who had learned about the CHD postnatally [13].

In 2014 American Heart Association underlined the importance of consulting and psychoemotional support for the parents after the prenatally diagnosed CHD. That report stated that as soon as the foetus was diagnosed with CHD and its complications discussed the team of specialists was to ensure the couple with the emotional support, educational training and the explanation of the action plan with regard to the childbirth and further treatment [14]. But the Association did not explain in its statement how this support was to be ensured.

In spite of the fact that the study methodology is limiting the possibility to predict which of the women appear to be in the risk group in view of psychological distress after the CHD prenatal diagnosis, we tried to investigate this subject.

The aim of our study was to determine the volume and goals of medical and psychological help to the pregnant women suspected of the foetus CHD. The study was conducted at the Kyiv-based state-run Scientific and Practical Medical Children's Cardiology and Cardiosurgery Center of the Ukrainian Health Ministry. 35 potential study participants were invited to take part in the study with 30 persons among them (9 married couples) agreed to participate.

Therefore 21 pregnant women before and after echocardiography foetus examination and 9 men were interviewed. All the women were in the period after the 18 weeks of gestation (median is the 28^{th} week of gestation, the span is from 18 to 37 weeks of gestation). All the women were over 18 years of age with no manifested psychiatric disorders. To assess the psychoemotional condition before the echocardiography examination we used the Hospital anxiety and depression scale (HADS) [15], with Russian adaptation by Drobizhev [16]. To determine the volume of medical and psychological help for married couples and pregnant women with the confirmed foetus CHD we have carried out a semistuctured interview after the echo-cardiography examination during which we asked the pregnant women the following questions: 1) How do you feel after the examination? 2) Do you understand the explanation of the results of the examination by the cardiologists? 3) Which information appeared to be the most important during the consultation? 4) Would you like to get additional information (oral or written) after the consultation with the cardiologist? What sort of information would you like to have? 5) What sort of psychological assistance would you like to get (distant consultation through the Skype at home or at clinic)?

Based on the results of echocardiography examination all the women were distributed between the two groups, namely: the first group included 13 women with confirmed foetus CHD

and the second group included 8 women with unconfirmed foetus CHD. The median interview constituted 35 minutes (from 20 to 60 minutes). All the participants were informed about their voluntary and confidential participation in the study, and they signed the patient's consent.

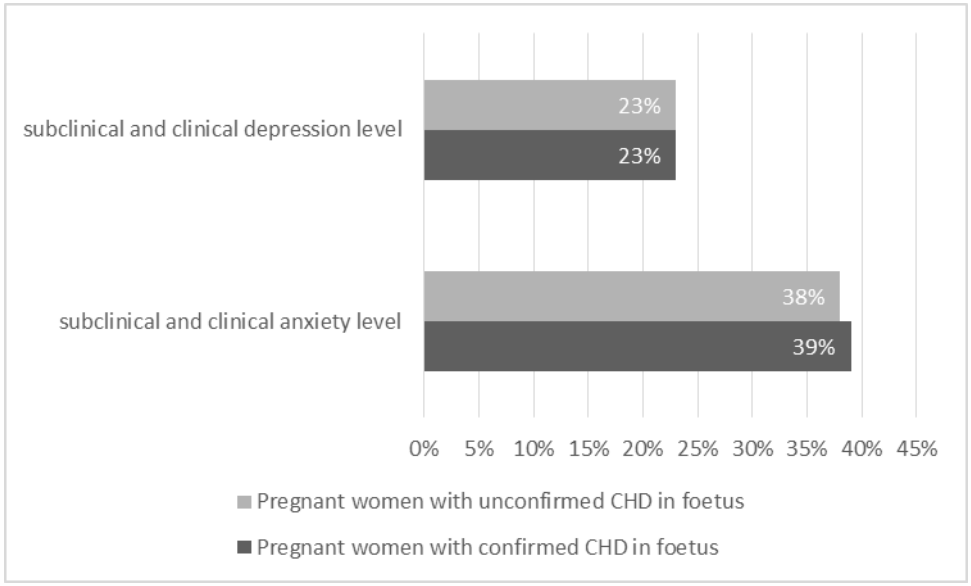
The statistical assessment of the results was carried out with the quantitative analysis of the SPSS (Statistical Package for Social Science) and Excel programs. The results of the interview were subject to qualitative assessment, namely the content analysis [17].

Social demographic features of the study contingent are represented in the Table 1. Cardiological prenatal diagnoses included: 1) atrial septal defect (5 cases); 2) aortic coarctaction (2 cases); 3) transposition of great arteries (3 cases); 4) Fallo tetrad (2 cases) 5) atresia of pulmonary artery, the moderate hypoplasia of right ventricular (1 case).

Table 1. Social and demographic peculiarities of the study contingent

Peculiarities of study contingent, n = 30	Number, median (min./ max.)
Age:	
- Pregnant women	28 (23-40)
- Husbands	30 (25-35)
Females/Males	21/9
With no more children (females)	14
Together in marriage (in years)	3,5 (1-21)
Educational level (females/males) :	
- Secondary school	2/1
- Special education	6/4
- University	13/4
Live in cities (females)	18

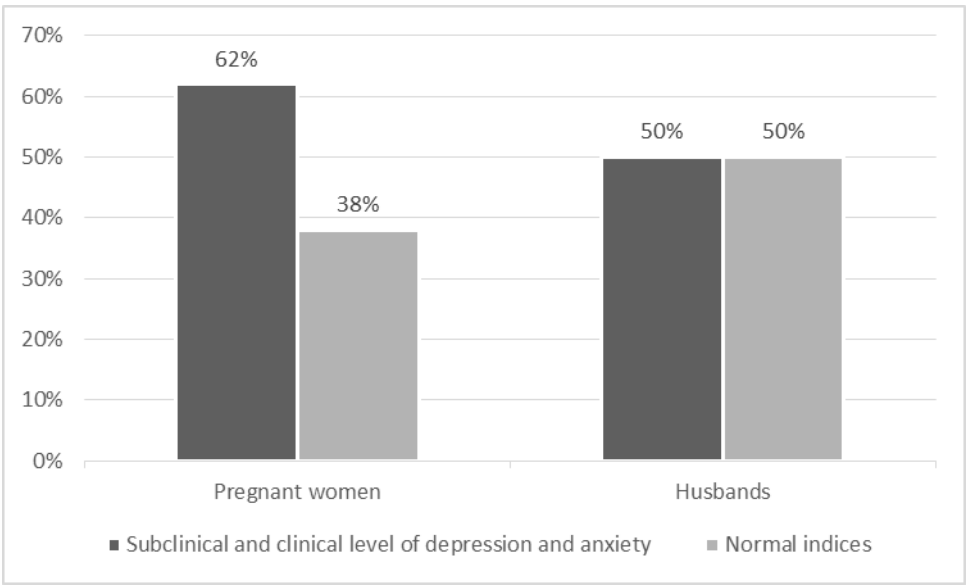
Following the study of psychoemotioanal conditions with the HADS method in women groups with confirmed and unconfirmed CHD statistical differences were not found. The anxiety level in the first group of women with prenatally confirmed foetus CHD equaled 7,07 $\pm$ 3,75 points, with median 7 (from 1 to 15 points), and the second group of women with uncorfirmed foetus CHD showed the level of anxiety of 7,75 $\pm$ 3,11 points, with median 6,5 (from 5 to 14 points), (P>0,05). The depression level in the first group of women with prenatally confirmed foetus CHD equaled 4,92 $\pm$ 3,34 points, with median 4 (from 0 to 10 points), and the second group 5,37 $\pm$ 2,83 points, with median 4 (from 1 to 10 points), (P>0,05). The percentage interrelation between the pregnant women with subclinical and clinical anxiety and depression levels with confirmed and unconfirmed CHD is represented in Picture 1.



Picture 1. The percentage interrelation between the pregnant women with subclinical and clinical anxiety and depression levels with confirmed and unconfirmed CHD

Thus the diagnostics of psychoemotional condition in pregnant women showed that 13 (61,9%) out of 21 persons displayed subclinical and clinical levels of anxiety and depression that could indicate the need of developing the measures of emotional support and preparation of pregnant women for further prenatal examination and CHD diagnostics.

Following the examination of men with HADS method it was found that 3 (37,5%) persons displayed the heightened anxiety level 6,67 $\pm$ 3,16 points, with median 6 (from 1 to 11 points). The level of depression equaled 4,78 $\pm$ 2,7 points, with median 4 (from 0 to 10 points) with clinical level of depression in 1 (12,5%) person. The percentage interrelation between the pregnant women and husbands with subclinical and clinical anxiety and depression levels before echocardiography is represented in Picture 2.



Picture 2. The percentage interrelation between the pregnant women and husbands with subclinical and clinical anxiety and depression levels before echocardiography

That is 4 (50%) husbands displayed subclinical and clinical levels of anxiety and depression that slightly differs from the same indices in pregnant women. It indicates that before the echocardiography examination the emotional support is needed not only for the pregnant women but the married couple in general.

While analyzing the results of semistructured interview we have found out that the women described the situation at the moment of diagnosing as emotionally hard. Most interviewed persons stressed their desire to get at once as much information as possible, but some pregnant women wanted to be informed step by step during several consultations. Some pregnant women emphasized that during the consultations they had failed to memorize all the information and forgotten to put some question therefore they needed additional consultations with the physician. One of the pregnant women told that her perception differed from that by her partner that had led to misunderstanding:

«We seemed to be at the consultation together with my husband but our perception of the prospect and effectiveness of the operation was different. After the consultation we kept asking one another… Did he really say it? No, he did not exactly say it? Yes, I understand, but it seemed to me he meant something else… As you can understand, it looked as if we had heard the some information but understood it quite differently»

(Pregnant woman №1)

The parents' perception of prenatal diagnosis was facilitated by the detailed information provided by the physician. The schematic description of CHD combined with the brief written information helped the parents recollect what was said during the consultation as well as clarify the meanings of medical terminology.

"We are ignorant of how the heart system works. The cardiologist demonstrated how the blood flows and how it is enriched with oxygen. After his explanation I understood the structure of the heart and what minor and major or severe defect means»

(Husband №1)

The parents focused attention that had been incessantly thinking of the future of life and death, of the anticipation of their child's operation. They were also thinking of how it all could influence their family and the quality of their child's life in the future.

"We are certainly concerned if we could overcome everything when our child will be growing up. I believe that the heart defect could be completely corrected and everything will be

well. But still I'm a bit worried about my child's quality of life after the operation. We keep discussing this issue with my wife…

(Husband № 3)

The information about the best clinic for the childbirth, future potential CHD symptoms, the number of operations, possible limitations and quality of life turned out to be the most important for the parents because they believed to be better prepared to counter future challenges. The married couples noted it would be quite useful to get information on how to be psychologically ready for the operations and repeated visits to the clinic in the case when there are other children in the family. Due to the fact that the women represented different localities of Ukraine, they stressed that it would be convenient for them to get psychological help distantly through the Skype follow up. The women emphasized that they would be happy if a physician or a psychologist could advise them on which websites, video films and text materials they could read to better understand their condition and prepare to solve the tasks they were facing. The married couples said they would want to meet the families who had found themselves in similar conditions, because it could help them tackle the emotionally complicated situation. The parents stressed it would be important for them to hear about the cases which had ended successfully as well as about the failures. Besides, the parents also said they would appreciate honest and truthful information and they would like to be inform about the risks and complications related to the operation.

"To speak with the physician would be the best in situations like those. I'm confident in the physician and even more… It is of great importance to have an opportunity to ask question even after the consultation, because at home you start to be looking for additional information in the Internet and lots of questions and doubts are emerging in your head"

(Pregnant woman №1)

"I;m in great pain in of understanding that as soon as my child appears it will need an open heart surgery immediately, because its heart is too small… The doctors assure of the effective treatment for such conditions but one can easily make a mistake and lots of risks endanger you at this early age"

(Pregnant woman №5)

Concluding the results of the study it is possible to say that the need to undergo echocardiography examination is an exciting situation for the most part of pregnant women (61,9%) and every second husband. The prenatal CHD diagnosis and adequate cardiological consultation related to it play an important role in the parents' decision on whether to continue pregnancy. The situation in question needs the elaboration of the respective program of psychoemotional support

and the preparation of the married couple for the prenatal examination. Cardiologists play the key role in this issue because they are the first to provide information about the condition of the foetus's heart and when it is needed they advise the pregnant women to visit relevant specialists. Still the question of how much information in prenatal and neonatal periods should be given to parents remains unclarified and disputable. For instance, for some parents it is important to understand the influence of surgery on the future reproduction potential of the child, while the physician believes this information should be given when the child is becoming older [18].

Thus, *Lalor* with colleagues after studying the specificity of breaking the prenatal CHD diagnosis to the pregnant women underlined that some mothers wanted to get as much information as possible at the first consultation to take a timely decision in the future. Other mothers, on the contrary, said that the abundance of information made them worried and they preferred to get information gradually and resolve problems when they arise. *Arya* and others stressed that the cardiologists themselves were divided on how much information should be given and when it is already excessive[19]. Taking into consideration the specificity of medical staff work related to CHD which is characterized by overwork, lack of normal sleep and rest, as well as by high level of emotional exhaustion [20], the situation with diagnosing a complicated prenatal CHD could pose real challenge before the cardiologist.

The results highlighted in the article underlined that peculiarities of the psychoemotional condition of the married couple expecting the echocardiography examination and learned about the prenatal CHD diagnosis need the relevant follow up program to be worked out. This program could include a consultation with the psychologist and the possible excess to enlarged data base of educational and Internet/video/printed materials. Besides the implementation of professional medical psychology conciliums of the Balint group type [21], with the possibility of analyzing various psychoemotional problems emerging in a day to day practice of children's cardiologist would facilitate the professional climate and improve the compliance between the physician and the patient.

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