

Psychical factor and pregnancy

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This paper presents results of numerous publications and in-house studies relating to various psychoemotional stress factors. Literature data dedicated to anxiodepressive condition of pregnant women have been analyzed.

Results relating to the effect and interrelation of psychic tension, depression, fear of childbirth on the labor and options of pre-delivery non-medicinal psychocorrection have been presented.

Key words: *depression, psychic tension, pregnancy, psychotherapy.*

According to the literature data, anxiety and depressive factors of pregnancy should be treated as chronic mental disorder. The reason is that at first manifestations of any pathologic process, impairment of the functions specific for the woman's organism occurs.

Biological mechanism of reproduction in optimal conditions works without failure, but any effect of various external injuring factors may result in adverse and even very severe consequences. It is today therefore very important to protect health of a pregnant.

Mental stress depends on economic, social problems and leads in pregnant women to the occurrence and growth of pathology caused by stresses. It is connected with intensity of the modern life, cardinal social and economic changes in the structure of our society. Relevance of the studies of the psychosomatic condition of a pregnant is determined by the tasks of the modern obstetrics: prevention of complications during pregnancy and delivery, reduction of the incidence of postpartum mental health disorders, reduction of perinatal losses [32, 33].

Frequent manifestations of the nervous and psychological tension include psychological stress developed under the influence of the above factors. Stress is a protective and adaptive neurohumoral reaction of the body arising in response to the action of various irritators leading to hemostasis impairment [34].

According S. Ayers, A. Pickering, parameters reflecting the effect of the psychological and depressive factor [1] on the pregnant's organism include the level of cortisol, adrenocorticotrophic hormone, testosterone and composition of the peripheral blood cells.

Dysfunction of the cerebral hypothalamic structures determines a broad spectrum of the peripheral symptoms, the principal ones being endocrine and metabolic, neurological and psychodepressive manifestations.

According to the World Health Organization [22], psychological diseases are one of the primary constituents of diseases in patients aged 15 to 44 years.

In function of the sample studied, prevalence of psychological disorders during pregnancy is similar to that in the postpartum period and is 10 to 50%. O. Vesga-Lopez et al. (2008), C. Lancaster et al. (2010) [3, 4] report that it is higher in groups with low social and economic status, in adolescents and patients with history of mental diseases.

Study findings of some authors showed that for the generalized psychodepressive factor, prevalence rate in the gestation period is 5%, with pregnancy-associated anxiety and depressive disorders occur in 54% of patients [5].

Researchers A. Lee et al. [6] show that the anxiety factor during pregnancy occurs more frequently than depressive one. Authors [6] note that 54% of patients suffer from it during pregnancy as opposed to depressive disorders which is reported in 34% of patients.

R. Lederman et al. [7] clarify that the highest anxiety and depression factor is observed in the third trimester of pregnancy. According to some authors, J. Alder, N. Fink, J. Bitzer et al. [8], anxiety and depression are often left undiagnosed. C. Teixeira et al. [9] showed in their studies that anxiety as a psychical factor was observed in the first trimester in 15% of cases, in the third trimester in 18%, and in the second trimester its incidence was lower.

J. Heron et al. [10] in their study on 8,323 pregnant women observed the anxiety factor in 16% of patients in the third trimester, and in an examination on month 2 postpartum, it was observed in 8.5% of patients.

C. Sosa et al. [11] indicate that amniocentesis, placentocentesis, extracorporal fertilization, diagnosing congenital malformations of fetus and pertinent diseases (arterial hypertension, diabetes and others) are additional reasons of increase of adverse psychical factors, especially anxiety in patients. Many things depend on the investigating physician, detailed explanation of a particular diagnosed pathology mitigates the condition caused by the anxiety and depression factor by about 50%.

In anxiety situations J. Sikkema et al. [12] assessed cortisol level in saliva in patients with developed preeclampsia. It appeared that of 250 examined pregnant women, preeclampsia occurred in 9 cases. The authors [12] note that the same change of the cortisol content in saliva was observed in the comparison group. Analysis of the completed studies did not show any significant differences in the cortisol level and anxiety level among groups, which is indicative of the fact that the psychogenic factor or increase of the hormone level has no role in anxiety conditions in preeclampsia pathogenesis.

E. Perova, N. Steniaieva, I. Apolikhina [13] showed in their paper that they analyzed in numerous studies the interrelation of anxiety and depression during pregnancy. For example, T. Rutledge et al. [14] note extremely unfavorable comorbid depression and anxiety on the cardiovascular diseases in mother.

A number of studies of T. Field et al. [15] showed similar data that the effect of such comorbidity increases the incidence of preterm delivery as compared with other groups of pregnant women. Anxiety conditions during pregnancy according to N. Korotkova are among the principal risk factors of emotional stress after delivery resulting in disadaptation, independence of depression and other disorders. The author showed in its study that the increase of the anxiety level, moderate and severe depression are generally accompanied by dyssomnic disorders [16].

It is reasonable to note studies relating to the interrelation of anxiety and depressive disorders and biochemical processes occurring in the patient's organism. **E.g. J. Dayan et al. [17] showed that synthesis and release of placental corticotrophin-releasing hormone (CTRH) occur in response to stimulation by stress hormones resulting in the increase of labor.**

Other study shows a mechanism aggravating the pregnancy outcome at anxiety and depression, i.e. a comprehensive biochemical interaction of various neurotransmitters.

Studies conducted by T. Field et al. demonstrated significant reduction of the dopamine levels at early and late pregnancy stages in patients with comorbid depression and anxiety. It is significant that high adrenaline level is registered in the same group in the postnatal period [15].

According to L. Evans et al., comorbid depression and anxiety in the gestation period are conditions at which excessive stimulation of the pituitary-hypothalamic adrenocortical axis (PHAA) with excessive secretion of stress hormones [18]. Studies of P. Rondo et al. [19] suggest that neuron-psychological tension in pregnant women result in the considerable increase of the fetus intrauterine growth retardation.

S. Lypien et al. [20] showed that anxiety disorders in pregnant women result in the significant risk not only for the intrauterine fetus development, but also influence the formation of brain structures responsible for mental health thus increasing the general susceptibility to psychopathic disorders of a baby, and according to J. Martini et al. [21] increase the risk of depressive disorders in mother in the postpartum period.

According to some investigators [15], newborns whose mothers displayed depression, comorbid depression and anxiety during gestation, had the highest level of cortisol and noradrenaline and considerably lower level of dopamine and serotonin.

H. Starksen et al. [22] state that the hypothesis claiming that patients with anxiety and depressive disorders have increased probability of pavor (tocophobia) as compared with patients without such psychological factor is proved by the completed studies.

K. Hotberg and L. Brockington [23] consider that tocophobia is a manifestation of psychoemotional stress in a pregnant at which the patient is horrified even to think of delivery and for this reason tries to avoid pregnancy.

K. Spice et al. [24] note that the prevalence of the fear of childbirth in primiparas as compared with multiparas is particularly high. There is a known behavior that patients with experience of childbirth are more self-assured and calm. Nevertheless, C. Nilsson, I. Lundgren [25] indicate that in the event of previous negative experience of delivery, the probability of fear of childbirth increases at the second and other pregnancies.

C. Lancaster et al. [4] conducted in Denmark a large-scale prospective cohort study on 25,297 healthy women for the period from 1997 to 2003 in which the fear of childbirth and dysthyroidism were related.

According to publications of M. Laursen et al., B. Sjogren and P. Thomossen [26, 27], the study conducted by the authors determined that anxiety and fear during pregnancy result in impairment of the physiological course of delivery, causing myometrium labor abnormality, increase the duration of the second labor stage (and fetal asphyxia, weak labor) and are the most common indication for cesarean operation.

H. Nordeng et al. [28] found out that in patients with fear, tobacco smoking, repeated delivery, concomitant mental disorders increase the frequency of administration of psychotropic medications in the gestation stage. S. Olson [29] determined that efficiency of music therapy neutralizing negative emotions increases the stress resistance threshold, promotes harmonization of internal processes, and helps the woman to attain deeper relaxation.

S. Chang and C. Chen [30] report that in pregnant women in which delivery was conducted through cesarean operation at the music therapy background, considerable reduction of anxiety level and increase of satisfaction from the operation. Sidorenko [34] reports that the use of resonance music therapy at management of patients with high risk showed decrease of the anxiety level on Spielberg scale.

As noted by investigators in [13], psychoeducational methods are also employed including various psychological approaches,

strategies with group training to change the woman's attitudes to pregnancy and delivery.

T. Saisto [35] conducted randomized clinical study, in which 176 pregnant women with fear of childbirth participating in the psychoeducational events demonstrated reduction of fear of labor in normal delivery. The study format included 10 group sessions (basic group of 85 patients), 91 patients received standard therapy. The author showed in his work that despite that there is no decrease in the general anxiety level in the active intervention group as compared with the comparison group, fear of pain at delivery was identified ($p=0.04$).

J. Teixeira et al. [36] presented analysis of the randomized controlled study of 58 pregnant patients who used active and passive relaxation, showed considerable reduction of anxiety, heart rate (HR) of the mother, and cortisol concentration in blood serum in both groups as compared with original values. Investigators determined that the active intervention group showed reduction of the anxiety level and HR as compared with the passive relaxation group [36].

Isolation of the psychogenic factor as separate forms among clinical variants in pregnant women is based on the etiological criterion. This approach is justified as noted above by ideas of the functional nature of hormone disruption. These ideas should be supplemented by data about intrafamilial interrelations of spouses and personality characteristics of the pregnant, since they in most cases determine pathogenicity of various psychological disturbances, and in some cases, stress.

We analyzed psychological condition of pregnant women and determine psychoemotional reactions (central, vegetative, hormonal) with regard to the family background.

19 selected women were examined with aggravated family anamnesis, caused predominantly by reproductive losses. Such patients in different years came to our center to determine potential of birth of healthy offspring at the 9 to 13 week gestational age. The age of women varied from 22 to 31 years.

Comparison group was composed of 10 phenotypically healthy pregnant women who were almost completely consistent in terms of age, social and economic status with pregnant women of the study group.

Genealogical analysis showed that all 19 married couples with pregnancy had an aggravated genealogy on the part of wives in 72.4%, and on the part of husbands, in 27.6% of cases. The most frequent cases in the genealogy included spontaneous abortions in 35.7% of cases; antenatal fetal death in 3.3%; early neonatal mortality in 1.7%; congenital malformations in 3.7%; infertility in 0.6% in relatives of the 1st and 2nd relation degree.

At the time of visit all married couples were in love. Analysis of the educational level of spouses showed that it was sufficiently high. Both spouses were university graduates in 43.3% of married couples, completed secondary vocational training in 19.4% of cases. And only 10.6% of married couples had only secondary education. In the rest of families education was different: one of spouses completed secondary, secondary vocational and higher education.

All patients including the comparison group underwent thorough comprehensive examination (clinical, psychological, hormonal, biochemical, ultrasound and functional).

The condition of the central link of psychoemotional reactions was assessed based on the electric activity of the brain in functional rest and against functional loads.

EEG was performed on 9-channel encephalograph with standard electrode placement.

Heart rhythm variability spectral analysis was used in examined patients of two groups by using computer electrocardiograph (Cardiofax ECAPS 12).

To identify actual mental state, modified multilateral examination of personality developed by F.B. Berezin was used [38].

Trait anxiety and state anxiety was assessed on Ch.D. Spielberg scaled as modified by Yu.L. Khanin [39].

To assess endocrine system, prolactin, sex steroid hormone concentration was studied (estradiol, progesterone in blood serum) by immunoluminometric assay on IMMULITE 1000 autoanalyzer, USA.

Analysis of 17-pregnenoldione and 17-ketosteroid with fractions in 24-hour urine was conducted by using color reaction as modified by M.A. Krekhova by using spectrophotometer.

In patients with hyperprolactinemia, thyroid gland was additionally examined: clinical examination by endocrinologist, analysis of T-hormone secretion (TT4, TT3, FT3, FT4, TSH).

High resolution ultrasound examination of pelvic organs was conducted by transabdominal, transvaginal method by using expert class digital USS HDI-3000 ATL/Phillips (USA), 2-5 MHz, 5-9 MHz sensors; Voluson-730 Pro GE (Austria/USA); sonomammography was conducted by using 12 MHz LG linear sensor.

Cytogenetic analysis showed that all examined married couples had normal chromosome set without any chromosome aberrations. Four selected pregnant women that were examined in recent years underwent modern molecular and genetic analyses of mutations in genes MTHFR; MTRR (folate exchange); F₂ and F₅ coagulability factors; GST (detoxication genes); HLA (histocompatibility complex) without any pathology identified.

Dissolution of marriage in 19 pregnant women was recorded at various gestational periods, ranging from 17 to 31 weeks. Causative factors included: discordance of sexual relationship mentioned by 77.3% of men and 22.7% of women. Dissolution of marriage was explained by youthful indiscretion. They were in such "age of love", where the need of love is so big that it is often mistaken for love. For this reason, the dissolution of marriage on the initiative of the husband was in 89.7% cases, and in 10.3% of cases on the insistence of wife due to the lack of common interests and love for the husband.

Health condition of spouses and their children is certainly one of parameters determining the family welfare. As is known, vicious habits (alpha alcoholism, tobacco smoking, and drug addiction) have detrimental effect on stability and life style of family, health of its members. We noted that 11 (57.9%) men smoked, and their wives were tobacco smokers to much lesser extent 2 (5.2%). There were 9 (47.3%) married couples in which both spouses did not smoke. In view of harmful effect of tobacco on fetus development and child health, these 2 patients did not smoke during pregnancy. Alcoholic beverages were drunk (including from time to time) 67% of men and 22% of women. No alcohol abuse was found.

Of particular importance were psychogenic reactions associated with emotions in connection with marriage dissolution. It is important to note that in the absolute majority of patients (15) they were associated with the effect of a series of conflict situations. They were based on marriage dissolution issues in all 19, tension in family caused by hereditary load. One of frequent reasons was raised demands of the mother-in-law resulting in repeated disputes in the family of 17 patients.

Selective effect of the psychogenic factor depends, as is known, on its preferred connection with particular premorbid patient's personality features. In 5 (6.3%) pregnant women of the main group, premorbid aggravation was identified, they suffered from numerous infectious diseases in infancy and adolescence (chickenpox, mumps, measles, scarlet fever), and in the comparison group such aggravation was observed in only one.

In psychological studies various character traits were identified, which in 7 (41.1%) of patients did not attained the pathology level in terms of intensity, but were boundary variants of the norm (accentuation). Normal menstrual function was in 15 (78.9%) of pregnant women, and in 4 (21%) oligomenorrhea, anovulatory cycles were identified. In the comparison group, 2 cases of previous gynecological diseases were noted, and no impairment of menstrual function was observed.

In 13 pregnant women psychological stress consisted in pedomorphism with typical increased suggestibility, carelessness, incompetence; in 6 other patients these features were combined with signs of neuropathy, i.e. fear susceptibility, sleep disorder, dyspepsia and allergic reactions; in 2 pregnant women nervous-like tics and fears.

Of pathogenic importance is not so much the impact, as the content of emotions, their subjective load. Marriage dissolution was certainly at the bottom of conflicts. Somatic reactions in pregnant women associated with divorce due to unreasoned jealousy of spouse were notable.

Asthenovegetative syndrome was identified at psychognostic testing in 13 pregnant women. Predominance of the hypersthenic condition was typical for such syndrome, consisting in increased irritability, abandonment, impatience with a touch of anger.

Autonomic disturbances were manifested in vascular lability, orthostatic syncopes were observed in 2 patients. Depressive syndrome signs were identified in 6 women. Secondary to the asthenic feeling, sufficiently prolonged alarm and depressive reactions were observed. The content of emotions was dominated by thoughts of self-incompetence, irrelevance, bothersome thoughts of her fate, predestination of loneliness in connection with leaving of her husband.

Description of 2 cases is of interest in this aspect. Patient "G" aged 23 on week 13 of gestation in 1982 visited the medical and genetic center regarding the potential of birth of a healthy child. Her husband was shaft sinker. During history taking, aggravation of habitual noncarrying of pregnancy was identified in the patient's genealogy on the maternal side. Cytogenetic assay showed normal chromosome set. On week 24 of pregnancy, the woman went to the high north where her husband worked, city of Labitnangi (Russia). The husband ceased to love her, did not admit her and lived at that time as a common-law partner of other woman. The pregnant "G" in a psychogenic stress dived off a bridge and died.

The second patient "K" aged 25, wife of geological engineer, who was at week 29 of pregnancy in 1991, caught her husband in her own flat with a "mistress" and on an impulse of rage associated with psychoemotional stress tried to kill her husband with a cutlery. Fortunately, there were no victims.

Hormonal analyses in other 18 divorced women demonstrated that estradiol, progesterone, LH, FSH, lactogenic hormone in blood plasma of 16 pregnant women was within reference values. In 2 fatty pregnant women with degree II and III obesity, increase of FSH = 8.7±0.1 (normal value > 1.2 to 11.3 mIU/L); LH = 10.52±0.2 (normal value 1.1 to 12.9), estradiol of 251 mg/ml (normal value 27 to 246) and reduction of progesterone to 0.07±0.01 (normal value 0.95 to 21.0 mIU/ml) was observed. According to literature and in-house studies, increase of concentration of FSH and LH gonadotropic hormones as well as estradiol sex hormone and reduction of progesterone in this category of pregnant women with obesity was expected, which is the case in lipid exchange impairment [37].

After clinical examination by a thyroid specialist and analysis of T-hormone section (TT4, TT3, FT4, TSH), no thyroid gland pathology was identified. In the comparison group, blood serum concentration of gonadotrophic, sex steroid hormones and secretion of T-hormones were within reference values.

Analysis of total corticosteroids and their fractions in 24-hour urine in 5 pregnant women showed an increase: 17-pregnenoldione of 8.7±0.9 mg a day (normal value of 1.5 to 5.5 mg a day); 17-ketosteroid of 37±1.3 mg a day (normal value of 5 to 15.7 mg a day); 11-pregnenoldione of 4.2±0.5 mg a day (normal value of 0.72 to 2 mg a day); androstosterone of 7.7±0.3 mg a day (normal value of 1.3 to 1.8 mg a day); etiocholanolone was within reference limits.

In 10 pregnant women of the comparison group, excretion of 17-pregnenoldione and 17-ketosteroid with fractions in 24-hour urine was within normal limits.

EEG was performed on 18 pregnant women after divorce; one pregnant woman, as explained above, died. Change in the activity of

limbic-reticular complex structures was found in 7 pregnant women in association with the psychoemotional stress.

Data analysis with regard to the hormonal disbalance in 5 women with changed 17-pregnenoldione and 17-ketosteroid levels with fractions and in 2 fatty patients showed that such changes reflect emotional shifts mainly in the limbic-reticular complex structure. EEG findings in control group pregnant women did not show any pathology, and the rest 11 pregnant women demonstrated in the marriage dissolution period intensification of ergotropic medium brainstem activating structures which manifested itself by an increase of X-mode frequency mode by 1.3 to 2.5 periods, decrease of its amplitude and index down to 37–42.7 %, increase of low amplitude β -activity with preserved spatial distribution of activity and normal EEG curve.

If there are any complaints of heart pain of various nature, ECG showed some changes of the terminal part of QRS complex assessed as manifestations of the vegetative dishormonal myocardiodystrophy.

In patients examined we identified various complications. The most frequent complication in divorced patients was a risk of interruption of pregnancy. Such complication was observed in 7 of 18 (38%) of women. There was no risk of interruption of pregnancy in the comparison group. Gestational toxicosis in 8 (44.4%) patients was mainly mild. Placenta dysfunction and chronic intrauterine hypoxia was observed in 6 (33.3%) of pregnant women.

Doppler sonography and cardiocography in 6 of 18 (33.3%) patients divorced during pregnancy, chronic fetal hypoxia was noted in trimester III in the mother-placenta-fetus (MPF) system. In 2 pregnant women on weeks 31–35 fetus growth retardation syndrome (FGRS) of degree II was observed. By analyzing blood circulation of MPF, impairment of the arterial utero-placental and fetoplacental circulation of degree II in the above 2 patients was identified.

In 6 (33.3%) pregnant women of group I followed-up by us, high incidence of premature delivery occurred, and no such cases were in the comparison group. Delivery was aggravated by untimely discharge of amniotic fluid in 4 (22.2%) pregnant women, and it was observed in one patient only in the control group.

Психический фактор и беременность

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В данной статье представлен обзор множественных публикаций и результаты собственных исследований, касающиеся различных психоэмоциональных факторов стресса.

Изучены данные исследований, посвященные тревожно-депрессивному состоянию у беременных.

Представлены результаты исследования о влиянии и взаимосвязи тревоги, депрессии, страха родов на течение родов, а также возможные методы дородовой нелекарственной психокоррекции.

Ключевые слова: депрессия, тревога, беременность, психотерапия.

Labor abnormality incidence was 5 (27.7%) women, and 1 in the control group. Timely delivery occurred in 12 divorced pregnant women, and 6 had premature labor on week 35 and 36. Cesarean operation was made to 5 women. Indications for the operation included: pelvic presentation in 1 pregnant, premature separation of placenta in 2; and in 2 more pregnant women disorganized labor were observed.

18 children were born alive, weighting 1,650 to 3,850 g; in two newborns degree I hypotrophy was observed. Apgar score was 6 to 10 points. One prematurely born baby died on day 1 after birth. The reason was severe asphyxia and degree III cerebral circulation disorder. In the comparison group, deliveries of all women gave full-time children.

In this group, 12 mature children were born, weighting 2,750 to 3,850 g, with Apgar score of 8 to 10 points.

CONCLUSIONS

According to numerous publications and in-house studies it can be concluded that the psychic factor in pregnant women is a serious social and medical problem. Methods of pre-delivery preparation make it possible for a patient to optimize her psychophysiological status, reduce negative expectations of delivery pains, lessen psychic tension.

Patients divorced during pregnancy with underlying high level trait anxiety and anxiodepressive neurotic disorders have significantly reduced compensatory reactions of the cardiovascular system, and impaired adequate goal-directed behavior [40]. Thus, pregnant women with underlying psychic factor fall within a high risk group as to the preterm interruption of pregnancy, unfavorable course of pregnancy, delivery and condition of the intrauterine fetus and newborn. In some cases suicide cases in divorced pregnant women are possible. Timely examination of personality of a woman allows to administer psychotherapeutic, psychoprophylactic and timely rehabilitation therapy methods individually at pregnancy failure in such patients.

As is known, comprehensive psychotherapeutic pre-delivery preparation contributes to prophylaxis of the postpartum depression, thus improving perinatal outcomes, quality of life of mother and newborns.

Психічний фактор та вагітність

П.М. Веропотвелян, М.П. Веропотвелян, І.В. Гужевська, А.М. Чуваков, Т.Т. Нарытник.

У даній статті наведені огляд багатьох публікацій та результати власних досліджень, що стосуються різноманітних психоемоційних факторів стресу.

Вивчені дані досліджень, які присвячені тривожно-депресивному стану у вагітних.

Наведені результати дослідження про вплив та взаємозв'язок тривоги, депресії та страху пологів на перебіг пологів, а також можливі методи дородової немедикаментозної психокорекції.

Ключові слова: депресія, тривога, вагітність, психотерапія.

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СПИСОК ЛИТЕРАТУРЫ

1. Ayers S., Pickering A. // Birth. – 2001. – Vol. 28. – P. 111–118.
2. World Health Organization. The global burden of disease-2004 update. Geneva: World Health Organization; 2008. http://www.who.int/healthinfo/global_burden_disease/2004_report_update/en/
3. Vesga-Lypez O., Blanco C., Keyes K., Olfson M., Grant B., Hasin D. Psychiatric disorders in pregnant and postpartum women in the United States. Arch. Gen. Psychiatry. 2008; 65 (7): 805–15.
4. Lancaster C., Gold K., Flynn H., Yoo H., Marcus S., Davis M. Risk factors for depressive symptoms during pregnancy: a systematic review. Am J. Obstet. Gynecol. 2010; 202 (1): 5–14.
5. Faisal-Cury A., Rossi Menezes P. Prevalence of anxiety and depression during pregnancy in a private setting sample. Arch. Women's Ment. Health. 2007; 10 (1): 25–32.
6. Lee A.M., Lam S.K., Sze Mun Lau S.M., Chong C.S., Chui H.W., Fong D.Y. Prevalence, course, and risk factors for antenatal anxiety and depression. Obstet. Gynecol. 2007; 110 (5): 1102–12.
7. Lederman R.P., Lederman E., Work B.A.Jr., McCann D.S. The relationship of maternal anxiety, plasma catecholamines, and plasma cortisol to progress in labor. Am. J. Obstet. Gynecol. – 1978; 132 (5): 495–500.
8. Alder J., Fink N., Bitzer J., Hüsl I., Holzgreve W. Depression and anxiety during pregnancy: a risk factor for obstetric, fetal and neonatal outcome? A critical review of the literature. J. Matern. Fetal Neonatal Med. 2007; 20 (3): 189–209.
9. Teixeira C., Figueiredo B., Conde A., Pacheco A., Costa R. Anxiety and depression during pregnancy in women and men. J. Affect. Disord. 2009; 119 (1–3): 142–8.
10. Heron J., O'Connor T.G., Evans J., Golding J., Glover V. The course of anxiety and depression through pregnancy and the postpartum in a community sam- ple. J. Affect. Disord. 2004; 80 (1): 65–73.
11. Sosa C., Althabe F., Belizan J., Bergel E. Bed rest in singleton pregnancies for preventing preterm birth. Cochrane Database Syst. Rev. 2004; (1): CD003581.pub2
12. Sikkema J.M., Robles de Medina P.G., Schaad R.R., Mulder E.J., Bruinse H.W., Buitelaar J.K. et al. Salivary cortisol levels and anxiety are not increased in women destined to develop preeclampsia. J. Psychosom. Res. 2001; 50 (1): 45–9.
13. Perov E.I., Stenyaeva N.N., Apolikhina I.A. Pregnancy on the background of anxiety, depression. // Journal of Obstetrics and Gynecology. – 2013. – № 6. – P. 23–27.
14. Rutledge T., Linke S.E., Krantz D.S., Johnson B.D., Bittner V., Eastwood J.A. et al. Comorbid depression and anxiety symptoms as predictors of cardiovascular events: results from the NHLBI-sponsored Women's Ischemia Syndrome Evaluation (WISE) study. Psychosom. Med. 2009; 71: 958–64.
15. Field T., Diego M., Hernandez-Reif M., Figueiredo B., Deeds O., Ascencio A. et al. Comorbid depression and anxiety effects on pregnancy and neonatal outcome. Infant Behav. Dev. 2010; 33 (1): 23–9.
16. Korotkov N.A. Effect of pregnancy and childbirth on the occurrence of postpartum stress and psycho-vegetative disorders in postpartum women: Author. dis. ... Dr. med. Sciences. – M., 2011.
17. Dayan J., Creveuil C., Marks M.N., Conroy S., Herlicoviez M., Dreyfus M. et al. Prenatal depression, prenatal anxiety, and spontaneous preterm birth: a prospective cohort study among women with early and regular care. Psychosom. Med. – 2006; 68 (6): 938–46.
18. Evans L.M., Myers M.M., Monk C. Pregnant women's cortisol is elevated with anxiety and depression – but only when comorbid. Arch. Women's Ment. Health. 2008; 11 (3): 239–48.
19. Rony P., Ferreira R., Nogueira F., Ribeiro M., Lobert H., Artes R. Maternal psychological stress and distress as predictors of low birth weight, prematurity and intrauterine growth retardation. Eur. J. Clin. Nutr. 2003; 57 (2): 266–72.
20. Lupien S.J., McEwen B.S., Gunnar M.R., Heim C. Effects of stress throughout the lifespan on the brain, behavior and cognition. Nat. Rev. Neurosci. 2009; 10 (6): 434–45.
21. Martini J., Knappe S., Beesdo-Baum K., Lieb R., Wittchen H.U. Anxiety disorders before birth and self-perceived distress during pregnancy: associations with maternal depression and obstetric, neonatal and early childhood outcomes. Early Hum. Dev. 2010; 86 (5): 305–10.
22. Storksen H.T., Eberhard-Gran M., Garthus-Niegel S., Eskild A. Fear of childbirth; the relation to anxiety and depression. Acta Obstet. Gynecol. Scand. 2012; 91: 237–42.
23. Hofberg K., Brockington I. Tokophobia: an unreasoning dread of childbirth. Br. J. Psychiatry. 2000; 176: 83–5.
24. Spice K., Jones S.L., Hadjistavropoulos H.D., Kowalyk K., Stewart S.H. Prenatal fear of childbirth and anxiety sensitivity. J. Psychosom. Obstet. Gynaecol. 2009; 30: 168–74.
25. Nilsson C., Lundgren I. Women's lived experience of fear of childbirth. Midwifery. 2009; 25: 1–9.
26. Laursen M., Johansen C., Hedegaard M. Fear of childbirth and risk for birth complications in nulliparous women in the Danish National Birth Cohort. Br. J. Obstet. Gynaecol. 2009; 116 (10): 1350–5.
27. Sjogren B., Thomassen P. Obstetric outcome in 100 women with severe anxiety over childbirth. Acta Obstet. Gynecol. Scand. 1997; 76 (10): 948–52.
28. Nordeng H., Hansen C., Garthus-Niegel S., Eberhard-Gran M. Fear of childbirth, mental health, and medication use during pregnancy Arch. Women's Ment. Health. – 2012; 15 (3): 203–9.
29. Olson S.L. Bedside musical care: applications in pregnancy, childbirth and neonatal care. J. Obstet. Gynecol. Neonatal Nurs. 1998; 27: 569–75.
30. Chang S.C., Chen C.H. Effects of music therapy on women's physiologic measures, anxiety and satisfaction during cesarean delivery. Res. Nurs. Health. – 2005; 28: 453–61.
31. Sidorenko V.N. Clinical application of Medical Resonance Therapy Music in high-risk pregnancies. Integr. Physiol. Behav. Sci. 2000; 35 (3): 199–207.
32. Kulakov V.I., Gasparova A.S. Central Federal District: health and demographic characteristics of the state of women's reproductive health. NTSAG and RAMN.M. MIA 2004; 134.
33. Watanabe M., Tanabe S., Tatsu Kana R. et al. Arch. Environ Contam Toxicol 1999; 37:3: 396–407.
34. Veropotvelyan P.N., Veropotvelyan N.P., Avksentiev O.N. Psycho-emotional stress in nulliparous women of reproductive age, divorced during pregnancy. // Journal Zhinochy likar. – 2012. – № 4. – P. 40–43.
35. Saisto T., Salmela-Aro K., Nurmi J.E., Kononen T., Halmesmaki E. A randomized controlled trial of intervention in fear of childbirth. Obstet. Gynecol. – 2001; 98: 820–6.
36. Teixeira J., Martin D., Prendville O., Glover V. The effects of acute relaxation on indices of anxiety during pregnancy. J. Psychosom. Obstet. Gynaecol. – 2005; 26 (4): 271–6.
37. Krauges R.M.J., reprint, Med. – 1982. – Vol. 27. – P. 503–511.
38. Berezin F.B., Miroshnikov M.P. «Problems psychoneurology», 1969. – P. 337.
39. Hanin Y.L. «Quick Guide to the application of the scale reactivity and trait anxiety» GD Spielberg. – M., 1976.
40. Ventskovsky B., Veropotvelyan N., Veropotvelyan P. «Medical and psycho-vegetative characteristics of patients with recurrent miscarriage with neuroendocrine origin» // Liky Ukrainy, 7–8 (96–97), 2005. – P. 114–117.

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