

Research Article

Severe Preeclampsia in the Second Half of Pregnancy. Treatment Strategies

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Article History

Received: 11.06.2020

Accepted: 28.06.2020

Published: 07.07.2020

Journal homepage:<https://www.easpublisher.com/easjms>**Quick Response Code**

Abstract: The problem of hypertensive disorders during pregnancy, being one of the most serious complications of pregnancy, is still not fully understood. Its frequency in recent years (2009 and later) is 17-24% of the total number of pregnant women and women in labor. The health problem of children born to mothers with preeclampsia remains relevant, since every fourth child with this complication of pregnancy has the effects of hypoxia and stunted growth. This article explores the use of magnesia therapy in pregnant women with severe preeclampsia in the second half of pregnancy. Optimal doses of magnesia therapy and prophylactic measures to prevent eclampsia have been proposed.

Keywords: preeclampsia, eclampsia, childbirth, cesarean section, magnesia therapy, doses, fetal growth retardation, preeclampsia complications

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INTRODUCTION

There is no single currently opinions about which the principles should be followed when carrying out comprehensive treatment of pre-eclampsia. According to V.N. Serova therapy of patients with preeclampsia is based on the treatment of symptoms and signs of its secondary manifestations, while the aim is to reduce the frequency of complications from the mother and fetus. The question remains open, in which blood pressure in pregnant women should be prescribed antihypertensive therapy, since it can lead to a decrease in placental blood flow and, thus, create a risk to the fetus (Sharma, J. B. *et al.*, 2006; & Bryantsev, M.D. 2010). Today, the effectiveness of magnesium sulfate in the treatment of severe preeclampsia has been proven and is beyond doubt. However, there is still no consensus on doses, tempo, methods of drug administration, control methods, duration of magnesia therapy for preeclampsia, which would help to avoid possible complications and improve treatment.

Object: to study the features of the course of pregnancy in women with severe preeclampsia in the

second half of pregnancy and to identify clinically significant effects and doses of magnesia therapy.

MATERIALS AND METHODS

We studied 58 women with severe preeclampsia in the second half of pregnancy who were admitted to the obstetric department in the 1st SamMI clinic. Women were divided into 2 groups by gestational age: 1st group 28 women with gestational age 22-34 weeks, 2nd group 30 women with gestational age more than 34 weeks. The average age of the examined was $27,8 \pm 5,5$ years.

During the study anamnestic data, anthropometric data were studied, risk factors for preeclampsia were identified. Laboratory tests were performed as a general blood test, a general urinalysis, a biochemical blood test, a coagulogram, a blood group and a Rhesus factor. Instrumental methods were ultrasonic fetal-placentometry, doppler metric examination, cardiotocography, electrocardiography.

RESULTS AND DISCUSSIONS

As a result of the analysis of the anamnesis data, the closest relatives of the examined women (48.3%) noted diseases of the cardiovascular

(hypertension, VSD, myocardial infarction, etc.), urinary (ICD, pyelonephritis, renal failure, etc.), endocrine (diabetes) systems, as well as complications during pregnancy (Table 1).

Table 1. Data on the hereditary burden of patients

№	Group	Anamnesis is burdened		Anamnesis is not burdened	
		n	%	n	%
I	Preeclampsia from 22 to 34 weeks	17	60,7	11	39,3
				5,7*	33,6
II	Preeclampsia from 34 weeks and more	11	36,7	19	63,3
				6,7*	56,6
Total		28	48,3	30	51,7

Note: * -*p* < 0.05 - significant differences between groups

Thus, almost half of the examined had heredity.

There were no significant differences in the spectrum of extragenital diseases transferred during the formation of the reproductive system in different groups; therefore, this factor did not significantly affect the nature of its formation and did not affect the course

of pregnancy that took place at the time of the examination.

Women who gave birth prematurely had a higher total incidence compared with those whose delivery was urgent.

Table 2. The structure of concomitant extragenital diseases

Nosology	1 group (n = 28)		2 group (n = 30)	
	n	%	n	%
Inside vascular dystonia of a hypotonic type	10	35,7	18	60,0
Inside vascular dystonia of a hypertonic type	8	28,6	0	0
Urolithiasis disease	2	7,1	2	6,7
Pyelonephritis	6	21,4*	5	16,7
Total	26	92,8	25	76,2

Note: * -*p* < 0.05 - significant differences between groups

From the data given in the table it follows that there is a close relationship between extragenital diseases and vascular disease, the development of severe preeclampsia.

When studying the reproductive history, it was noted that 18 (31.1%) were pre-pregnant, 40 (68.9%) re-pregnant women.

In the examined pregnant women with a burdened obstetric-gynecological history, its features were studied in detail: spontaneous abortion, habitual miscarriage, undeveloped pregnancy, birth data of children with low body weight.

The average number of pregnancies per woman was 2.4 ± 7.0 (Table 3).

Table 3. Characteristic of the generative function

Group	Characteristic of the generative function	The average number of pregnancies per woman	The average number of births per woman
1 st	M±m	1,7±0,3*	1,3±0,2*
2 nd	M±m	2,4±0,4*	1,4±0,2*

Note: * -*p* < 0.05 - significant differences between groups

The course of this pregnancy in the general group of patients was complicated by early toxicosis of the first half of pregnancy in 18.6% of the examined, the threat of termination of pregnancy - in 45.2% of patients, anemia - in 26.0% (Table 4).

In all groups, pregnant women complained of nausea, vomiting 1-2 times a day, general weakness, fatigue. There were no severe forms of toxicosis.

Table 4. Features of the course of this pregnancy in the examined women

Group		Vomiting pregnant	The threat of abortion	Anemia
1 st	n	8	6	8
	%	26,7	20,0	26,7
2 nd	n	12	22	16
	%	20,0	36,7	26,7

Especial interest for clinical practice is the severity of the main symptoms of PE. In our study, it was heterogeneous. With high BP, minor edema and proteinuria were observed, and, conversely, with severe edema and progeinuria, BP could be low. So, the Zangemeister triad was found only in 28.0% of pregnant women with severe PE. More often two symptoms of PE were expressed, sometimes only one symptom (monosymptomatic PE), which was mainly

observed in pregnant women with PE against the background of intravascular dystonia (in 9.7% of cases).

We have analyzed the results of the study, the status of the fetoplacental system in the examined. We found that in most cases (80.8%) the size of the fetus corresponded to a gestational period (Table 5).

Table 5. Ultrasound Results

Group		The size of the fetus corresponds to the gestational age	Fetal size lag
1 st	n	22	8
	%	73,3	26,7
2 nd	n	25	9
	%	73,5	26,5

In ultrasound placentography, we evaluated the following parameters: localization, thickness, maturity, structure, and the presence of pathological changes. We have not revealed significant differences between the groups examined according to the location and thickness of the placenta. In the majority of the examined - 86 (94.3%) - the placenta was located on the front and side walls of the uterus, while in 16 (7.7%) of them a low placentation was noted. On the back wall of the uterus, the placenta was localized in 12 (5.7%)

examined pregnant women. The thickness of the placenta was within the standard values and only in 4 (1.9%) cases we noted a thin placenta. When assessing the degree of maturity of the placenta, its premature maturation was observed in 12 (5.7%>) examined. In 6 (2.9%) studies, we found placental cysts, in 4 (1.9%) a single umbilical artery was noted. In 11 (18.9%) examined in the placenta, hyperechoic inclusions were found (they were regarded as petrificates) (Table 6).

Table 6. Structural changes in the placenta in the form of hyperechoic inclusions (with ultrasound)

Group	Identified	Not identified
1 st	n	5
	%	17,8
2 nd	n	6
	%	20,0
	n	11
Total	%	18,9

Using ultrasound, the normal amount of amniotic fluid in group I was found in 53.3% of patients. In group II, a normal amount of amniotic fluid occurred in 52.4%. Polyhydramnios was detected in 19.2% of the examined. Increased amniotic fluid index, in the first group - 15.8%, in the second - 23.8%. Most of the examined blood flow disorders in the vessels with dopplerometry were not detected. Moreover, in patients of the second group, resistance in the uterine artery increased.

A cardiotocographic study showed a decrease in heart rate and an inadequate fetal reaction during a provocative test.

In 78.8% of patients, when used as part of complex therapy with magnesia therapy, it was possible to prolong a premature pregnancy from 2 to 16 days (the average bed day was 9.6 + 2.1), and to prevent respiratory distress syndrome in the fetus during premature pregnancy and preparation for delivery.

The use of a strictly differentiated approach in the treatment of hypertensive conditions of varying

severity had a positive effect on the rate of bleeding. In our study, the frequency of hypotonic bleeding in the postpartum period after the introduction of a treatment protocol for PE based on the principles of osmo-oncotherapy decreased by more than 2 times compared with this indicator presented in the reports of clinical databases before the introduction of the developed treatment regimen. In our study, the frequency of abdominal delivery was 31.7%. Almost half of women with fetal growth retardation were delivered operatively. The frequency of Caesarean section differed in the groups examined.

Adequate assessment of the severity of the hypertensive state and FSF, rational treatment based on osmo-oncotherapy (magnesia therapy), adequate and timely delivery allows you to profile the worsening of the hypertensive state and is a reserve for improving maternal health and perinatal outcomes.

CONCLUSIONS

1. As a result of the analysis of the anamnesis data, the nearest relatives of the examined women (48.3%) noted cardiovascular diseases (hypertension, VSD, myocardial infarction, etc.), urinary (ICD, pyelonephritis, renal failure, etc.), endocrine (DM) systems, as well as complications during pregnancy.
2. When assessing the degree of maturity of the placenta, its premature maturation was observed in 12 (5.7%>) examined. In 6 (2.9%) studies, we found placental cysts, in 4 (1.9%) a single umbilical artery was noted. In 11 (18.9%) patients examined in the placenta, hyperechoic inclusions were found (they were regarded as petrificates).
3. The use of magnesium sulfate leads to an increase in uteroplacental blood flow and reduces the incidence of severe neurological deficiency in newborns. It was found that the drug does not have serious side effects for the mother and is safe for the fetus. As well as magnesia therapy reduces the risk of cerebral palsy in premature infants, especially those with gestational age less than 30 weeks. A good anticonvulsant effect occurs when the content of magnesium in the blood is 2.5 mmol /l.

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