



**Features of Pure Progestin Contraception in Women with
Pre-Eclampsia/Eclapmsis**

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Abstract

preeclampsia (PE)/eclampsia (E) refers to emergency conditions in obstetrics. According to WHO data from a study of maternal and child health, including data from 29 countries (World Health Organization Multicountry Survey on Maternal and Newborn Health (WHOMCS), hypertensive conditions during pregnancy are conditions that are potentially life-threatening to a woman, increasing the risk of near-miss cases by 8 times in women with preeclampsia/eclampsia. Complications of pregnancy and the early postpartum period caused by preeclampsia/eclampsia have been studied and included in clinical guidelines regulating their diagnosis, prevention and treatment. However, preeclampsia/eclampsia is associated with long-term risks of complications that threaten not only health, but also the life of a woman over the next decades. Early preeclampsia and the presence of one birth increase the risk of cardiovascular death of a woman in later life. Not only pregnancy, but also the postpartum period pose a threat to a woman's life. The risks of preeclampsia are 4.1% during the first pregnancy and 1.7% at subsequent pregnancy. However, the risk can reach 14.7% for a second pregnancy if the first pregnancy was complicated by preeclampsia, and 31.9% if the previous two pregnancies were complicated by preeclampsia. The risk of recurrence of preeclampsia increases as the interval to subsequent pregnancy lengthens.

Key words: *preeclampsia, intrauterine device contraception, eclampsia, pure progestin contraception.*

Introduction

Preeclampsia is a complication of pregnancy. With preeclampsia, you may develop high blood pressure, high levels of protein in the urine that indicate kidney damage (proteinuria), or other indicators of organ damage. Preeclampsia usually begins after 20 weeks of pregnancy in women whose blood pressure was previously in the normal range.(1)

If preeclampsia is left untreated, it can lead to serious complications, which may lead to the death of the mother and fetus.

Therefore, early delivery is often recommended in this case. Determining the time of delivery depends on the severity of preeclampsia and the number of weeks of your pregnancy. Before delivery, treatment for preeclampsia includes careful monitoring, taking blood pressure-lowering medications, and controlling complications.

Preeclampsia can appear after the fetus is delivered, a disease known as postpartum eclampsia. (5)

Symptoms

Symptoms that accompany preeclampsia are high blood pressure, proteinuria, or other indicators of kidney or other organ damage. It is possible that no noticeable symptoms will appear. The first signs of preeclampsia are often discovered during your regular visits to the doctor before giving birth. (4)

In addition to high blood pressure, signs and symptoms of preeclampsia can include:

- Increased levels of protein in the urine (proteinuria), or the appearance of other indicators indicating the presence of kidney problems
- Low levels of platelets in the blood (thrombocytopenia)
- Elevated liver enzymes, which indicates liver problems
- Severe headache
- Vision changes, including temporary vision loss, blurred vision, or sensitivity to light
- Shortness of breath due to the presence of fluid in the lungs
- Pain in the upper abdomen, usually below the ribs on the right side

Nausea or vomiting

Weight gain and swelling (edema) are common symptoms during a healthy pregnancy. However, sudden weight gain or sudden swelling - especially of the face and hands - is likely a sign of preeclampsia. (12)

Reasons

There may be several factors that determine the exact cause of preeclampsia. Experts believe that this condition begins in the placenta, which is the organ that nourishes the fetus throughout pregnancy. At the beginning of pregnancy, new blood vessels form and grow to transport oxygen and nutrients to the placenta. (13-15)

It appears that these blood vessels do not form or do not function properly in women with preeclampsia.

Problems related to the safety of blood flow in the placenta may lead to irregular blood pressure in the mother.

Other hypertensive disorders during pregnancy

Pre-eclampsia is one of the disorders of high blood pressure (hypertension) that can occur during pregnancy.

Other disorders may occur, such as:

Gestational hypertension, which is high blood pressure that begins after 20 weeks of pregnancy without problems with the kidneys or other organs. Some women with gestational hypertension may develop pre-eclampsia.

Chronic hypertension, which is high blood pressure before pregnancy or high before 20 weeks of pregnancy.

High blood pressure that lasts longer than three months after pregnancy is also called chronic hypertension.(10).

Chronic hypertension accompanied by pre-eclampsia. This condition is exposed to women who were diagnosed with chronic high blood pressure before pregnancy and then their high blood pressure worsened with the appearance of protein in the urine or other health complications during pregnancy. (7)

Complications

Complications of preeclampsia may include:

Poor fetal growth. Pre-eclampsia affects the arteries that carry blood to the placenta. If the placenta does not get enough blood, the baby may get insufficient amounts of blood, oxygen and nutrients. This may lead to slow growth known as fetal weakness.

Premature birth. Pre-eclampsia may lead to unplanned premature birth; That is, giving birth before 37 weeks of pregnancy. But planned early delivery is one of the main treatments for pre-eclampsia. A child born prematurely becomes more susceptible to breathing and breastfeeding problems, vision or hearing problems, delayed growth, and cerebral palsy. But treatment before preterm birth can reduce some of these risks.

Premature placental abruption. Preeclampsia increases the risk of premature placental abruption. In this pathological condition, the placenta separates from the inner wall of the uterus before birth. Severe cases of separation can lead to profuse bleeding, which may threaten the lives of the mother and child. (5)

HELLP syndrome. The letters in the English name for HELLP syndrome stand for hemolysis (destruction of red blood cells), elevated liver enzymes, and low platelet counts. This severe type of pre-eclampsia affects many body systems. This is why HELLP syndrome is a life-threatening condition for the mother and the fetus, and may cause health problems for the mother throughout her life. (6)

Signs and symptoms include nausea, vomiting, headache, pain in the upper right abdomen, and a general feeling of fatigue or illness. This syndrome sometimes appears suddenly, even before high blood pressure is discovered. It may also occur without any symptoms. (8)

Eclampsia. Eclampsia is the onset of seizures or coma with signs or symptoms of pre-eclampsia. It is very difficult to predict whether a patient with pre-eclampsia will develop eclampsia or not. Eclampsia may occur without any noticeable signs or symptoms of pre-eclampsia.(11).

Signs and symptoms that may appear before seizures may include severe headaches, vision problems, mental confusion, or behavioral changes. But most often, there are no symptoms or warning signs. Eclampsia may occur before, during, or after birth.

Damage to other organs. Pre-eclampsia may cause damage to the kidneys, liver, lungs, heart or eyes, and may cause a stroke or other brain injury. The extent of injury to other organs depends on the severity of pre-eclampsia. (9)

Cardiovascular disease. Having pre-eclampsia may increase your risk of developing heart and blood vessel (CV) disease in the future. The risk increases if you have had pre-eclampsia more than once or have given birth prematurely. (9)

Problem

The most important factor in conservation women's reproductive health, preeclampsia/eclampsia is a solution to the problem with of unwanted pregnancy (7-15). Despite the long history of contraception, there remain a number of unresolved issues related to the effectiveness and safety of various contraceptives in women of this category. In recent years, interest in developing principles for the use of hormonal contraception has grown (1-6). There is a lot of data in the literature on the principles of using hormonal contraception in the after childbirth, is very little work regarding the study of this issue in women with preeclampsia/eclampsia. The main requirements for contraceptive methods in the postpartum period are: no effect on lactation and child development; high reliability (11-15).

Objectives

The purpose of our study was to examine the results of using progestin-only contraception in women with preeclampsia /eclampsia who had undergone cesarean section.

Population

The sample population consisted of pregnant women in Khartoum city hospitals who used progestin-only

contraceptives.

Sample Size

Sample size was calculated according to the following formula+10% to compensate student that unable to contact or non response.

$$n = (z^2 pq) / (e^2 (1-r)) * deff$$

z is a value in a normal distribution curve that equal to 1.96 at confidence 95%

P is the estimated proportion that present in the population, it was taken as 10.5 (taken from a survey that has been conducted in the year 2014 among Khartoum state hospitals).

$$q = 1-p$$

e is the desired margin of error. It was taken as 2%

r is non response rate

deff, is the design effect,

$$n = 30$$

The sampling technique was cluster sampling (multi stage). (17)

Materials and Methods of research

We observed women with preeclampsia/eclampsia who were delivered by cesarean section (group I-main), in maternity hospital No. 2, for the period from 2020 to 2022. Group II (control) without. Made up thirty women Preeclampsia/eclampsia, vaginal delivery. All patients corresponded to the chosen method according to their gynecological status. All patients included in the study received counseling on postpartum contraception in the antenatal period. Prescriptions were carried out in accordance with existing WHO standards, taking into account contraindications, advantages and disadvantages of this method.

All women took the oral contraceptive Lactinet 6-8 weeks after delivery.

During the use of contraception, the general condition of the patients, body weight, blood pressure, and the presence/absence of side effects were monitored. Observations were carried out before the start and over time after 6 and 12 months of use (Table No. 1).

Table 1. Average blood pressure values during the Lactinet contraception process

Time Research	Blood pressure indicators (mm.Hg) Syst.	Gr I (n=30)	Gr II (n=30)
		Original	Blood pressure Diastolic
In 6 Months	BP Syst.	73.9	73.1
	Blood pressure	117.7	117.2
In 12 Months	Diastolic BP	73.1	73.8
	Syst. Blood pressure Diastolic HELL	117.3	118.4
		74.9	74.2

From the data indicated in Table No. 1, it follows that “Laktinet” used for contraception in women with preeclampsia/eclampsia and in women without preeclampsia/eclampsia does not affect the values of systolic and diastolic pressure compared to the initial data. An important question is the effect of long-term use of Lactinet on the body mass index in women after childbirth.

During dynamic observation during oral contraception "Laktinet", the average body mass index, in relation to the initial one in the studied. Groups increased slightly, but no statistically significant difference was noted ($p \leq 0.05$).

An interesting question is the effect of the drug “Lactinet” on lactation function .Data on the duration of breastfeeding in women with preeclampsia/eclampsia, after cesarean section and spontaneous birth without preeclampsia/eclampsia, using the Lactinet contraceptive are presented in Table No. 2.

Table 2. Duration of breastfeeding in women with different methods of delivery and use of the drug “Lactinet” for contraception

Duration of breastfeeding	I gr. (n=30)		II gr. (n=30)	
	Abs. number	%	Abs. number	%
3 months	9	30	8	26,6
6 months	18	60	18	60
9 months	2	6,7	2	6,7
12 months	1	3,3	2	6,7
Total	30	100,0	30	100,0

The average duration of maternal breastfeeding when using the oral contraceptive "Lactinet" in women without preeclampsia/eclampsia averaged 6.1 months, and in women with preeclampsia/eclampsia 5.8 months. We believe that the duration of lactation in women with preeclampsia/eclampsia depends on the general condition, method of delivery, blood loss, and method of pain relief.

It should be noted that in 6 (20%) patients with preeclampsia/eclampsia and 5 (16.6%) without preeclampsia/eclampsia, side effects occurred when using progestin-only oral contraception: acyclic bleeding occurred in 2 patients (6, 7%) in the main group and in 2 patients (6.7%) in the control group; weight gain in 1 (3.3%) patient in the main and 1 (3.3%) patient in the control group; nausea also occurred in 1 (3.3%) patient in the main and 1 (3.3%) patient in the control group; depression in 1 (3.3%) patient in the main group and mastalgia in 1 (3.3%) woman in the control group, respectively. At the same time, the incidence of side effects did not differ significantly in both compared groups. Among the adverse reactions when using Lactinet, the most frequently observed were acyclic bleeding from the genital tract.

The contraceptive effect in both groups during the observation period was 100%; pregnancy did not occur in any patient. At the same time, the drug did not have an inhibitory effect on lactation and did not cause significant changes in body mass index, systolic and diastolic blood pressure. It should be especially noted that pure progestin tablets (PPT) did not have a negative effect on the course of the underlying disease.

Limitations

Our findings need to be interpreted with caution. In certain cases, onset of pre-eclampsia may have occurred a few days before hospital referral or admission. The lag between onset of pre-eclampsia and diagnosis during referral or admission may have resulted in misclassifying some EO-PE as LO-PE at 34 weeks—particularly in the last week of EO-PE and the beginning of first week of LO-PE. We were unable to get robust data on the gestation age at ANC booking due to missing data within the in-patient records. Due to a lack of routine record-keeping (e.g. scant information on referral and clinical forms)

Conclusions

Considering the peculiarities of the influence of the drug "Lactinet" on the main functional systems of the body and high contraceptive activity, priority indications for prescribing the drug may be: women with preeclampsia/eclampsia in the postpartum period, especially after cesarean section; Progestin-only contraception is of particular importance in women with preeclampsia/eclampsia who have contraindications

for the use of estrogen-containing combined oral contraceptives. PPT - "Lactinet" can be an effective method of postpartum contraception in women with preeclampsia/eclampsia, provided adequate counseling before birth.

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