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OVARIAN HORMONAL STRESS AFTER MEDICAL ABORTION

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Abstract

Topicality: Abortion is an artificial termination of pregnancy that causes a serious change in the hormonal background. One of the modern most sparing methods of termination of pregnancy is considered to be medical termination of pregnancy in the early stages through the use of biologically active substances. After the termination of pregnancy, the body, which has begun preparing for carrying a child and lactation, is experiencing serious stress. No matter how gentle the method of termination of pregnancy is, it is still a serious psychological and physical trauma, hormonal stress and always presents a risk of serious complications. According to foreign and domestic scientific research, there is not enough research on the state of the pituitary gland and ovaries after a medical abortion, which was the purpose of our study.

The purpose of the study: to study the hormonal status of women after medical abortion

Research methods and materials. We observed 50 women who had no contraindications to pharmacological abortion in the post-abortion period after a medical abortion performed in an outpatient clinic with a delay in menstruation up to 63 days. All pregnant women were examined before medical abortion according to the clinical protocol of the MZRK

Results. The age of women who applied to the clinic for abortion was on average 26-30 years (38%). There were no contraindications for medical abortion among pregnant women. According to pregnancy parity, every second pregnant woman was multiparous, every third was multiparous, and every fifth was primiparous. According to the results of a clinical examination, the hemoglobin values were not lower than 100 g/l in 90%, only in 10% hemoglobin was within 95 g/l. According to the results of a smear for the degree of purity of the vagina, every second woman had a second degree of purity of the vagina, which is considered within the normal range. The third degree of purity of the vagina was found in 34% of pregnant women, and the fourth - in 16%. Observation of women during medical abortion showed no complaints. According to the results of the third visit, it was found that among 74% of women among early post-abortion complications in 2 (6%) pregnant women, ultrasound revealed a hematometer, which subsequently led to late complications - menstrual irregularities against the background of chronic endometritis. Before and after medical abortion, all women were determined hormonal status by ELISA. For 3 months, the patients kept a menstrual calendar, as well as ultrasound of the pelvic organs at the end of medical abortion and subsequently on the 5th day of the menstrual cycle to study the state of the endometrium and ovaries.

The novelty of the study: the study of the hormonal status of women will allow for the prevention of early ovarian failure among women at risk.

Practical application of the study: use of combined oral contraceptives after medical abortion for 3 months.

Key words: *medical abortion, menstrual calendar, hormonal stress.*

Резюме

ГОРМОНАЛЬНЫЙ СТРЕСС ЯИЧНИКОВ ПОСЛЕ МЕДИКАМЕНТОЗНОГО АБОРТА

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Актуальность: Аборт – искусственное прерывание беременности, вызывающее серьезное изменение гормонального фона. Одним из современных наиболее щадящих методов прерывания беременности считается медикаментозное прерывание беременности на ранних сроках путем применения биологически активных веществ. После прерывания беременности организм, начавший подготовку к вынашиванию ребенка и лактации, испытывает серьезный стресс. Каким бы щадящим не был способ прерывания беременности, он все равно является серьезной психологической и физической травмой, гормональным стрессом и всегда представляет собой риск серьезных осложнений. По данным зарубежных и отечественных научных исследований недостаточно исследований по состоянию гипофиза и яичников после медикаментозного аборта, что и явилось целью нашего исследования.

Цель исследования: изучить гормональный статус женщин после медикаментозного аборта.

Методы и материалы исследования. Нами проведено наблюдение 50 женщин, не имевших противопоказаний к фармакологическому аборту, в постабортном периоде после медикаментозного аборта, проведенного в условиях амбулатории при задержке менструации до 63 дней. Все беременные проходили обследование перед медикаментозным абортом согласно клиническому протоколу МЗРК.

Результаты. Возраст женщин, обратившихся в клинику для прерывания беременности составил в среднем 26-30 лет (38%). Среди беременных противопоказаний к медикаментозному аборту не было. По паритету беременности каждая вторая беременная была повторнобеременной, каждая третья-многогрожавшей и каждая пятая – первобеременной. По результатам клинического обследования значения показателей гемоглобина были не ниже 100 г/л у 90%, только у 10% гемоглобин был в пределах 95 г/л. По результатам мазка на степень чистоты влагалища каждая вторая женщина имела вторую степень чистоты влагалища, что считается в пределах нормы. Третья степень чистоты влагалища была выявлена у 34% беременных, а четвертая – у 16%. Наблюдение за женщинами во время медикаментозного аборта показало отсутствие жалоб. По результатам третьей явки было выявлено, что среди 74% женщин среди ранних постабортных осложнений у 2 (6%) беременных по УЗИ была выявлена гематометра, которая в последующем привела к поздним осложнениям – к нарушению менструального цикла на фоне хронического эндометрита. До и после медикаментозного аборта всем женщинам определяли гормональный статус методом ИФА. В течение 3 месяцев пациентки вели менструальный календарь, а также УЗИ органов малого таза в конце медикаментозного аборта и в последующем на 5 день менструального цикла для исследования состояния эндометрия и яичников.

Новизна исследования: исследование гормонального статуса женщин позволит провести профилактику раннего истощения яичников среди женщин с группой риска.

Практическое применение исследования: использование комбинированных оральных контрацептивов после медикаментозного аборта в течение 3 месяцев.

Ключевые слова: медикаментозный аборт, менструальный календарь, гормональный стресс.

Түйіндеме

МЕДИКАМЕНТОЗДЫҚ АБОРТТАН КЕЙІН ОВАРИЯЛЫҚ ГОРМОНАЛДЫҚ СТРЕСС

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Өзектілігі. Аборт-гормоналды фонда үлкен өзгеріс әкелетін жүктіліктің жасанды үзілуі. Жүктілікті тоқтатудың қазіргі заманғы ең жұмсақ әдістерінің бірі биологиялық белсенді заттарды қолдану арқылы жүктілікті ерте кезеңдерде дәрі-дәрмекпен тоқтату болып саналады. Жүктілікті тоқтатқаннан кейін, бала көтеруге және лактацияға дайындықты бастаған организм қатты күйзеліске ұшырайды. Жүктілікті тоқтату әдісі қаншалықты жұмсақ болса да, ол әлі де ауыр психологиялық және физикалық жарақат, гормоналды стресс болып табылады және әрқашан ауыр асқынулардың қаупін тудырады. Шетелдік және отандық ғылыми зерттеулердің мәліметтері бойынша, медициналық түсік түсіруден кейінгі гипопиз және аналық бездердің жағдайы туралы зерттеулер жеткіліксіз, бұл біздің зерттеуіміздің мақсаты болды.

Зерттеу мақсаты: медициналық түсік түсіргеннен кейін әйелдердің гормоналды жағдайын зерттеу

Зерттеу әдістері мен материалдары. Біз менструацияны 63 күнге дейін кешіктірген кезде амбулатория жағдайында дәрі-дәрмектік түсіктен кейінгі кезеңде 50 әйелге бақылау жүргіздік. Олардың ешқайсысында фармакологиялық түсік түсіруге қарсы көрсетілімдер болған жоқ. Барлық жүкті әйелдер ҚР ДСМ клиникалық хаттамасына сәйкес дәрі-дәрмектік түсік алдында тексеруден өтті

Нәтижелері. Жүктілікті үзу үшін клиникаға жүлген әйелдердің жасы орта есеппен 26-30 жасты (38%) құрады. Жүкті әйелдердің арасында медициналық түсік түсіруге қарсы көрсетілімдер болған жоқ. Жүктіліктің паритеті бойынша әрбір екінші жүкті әйел қайтадан жүкті болды, әрбір үшінші-көп жүкті және әрбір бесінші – бірінші жүкті болды. Клиникалық тексеру нәтижелері бойынша гемоглобин көрсеткіштерінің мәні 90% - да 100 г/л-ден төмен емес, тек 10% - да гемоглобин 95 г/л шегінде болды. Қынаптың тазалық дәрежесіне жағынды нәтижелері бойынша әрбір екінші әйел қынаптың тазалығының екінші дәрежесіне ие болды, бұл норма шегінде саналады. Қынаптың тазалығының үшінші дәрежесі жүкті әйелдердің 34% – ында, ал төртіншісі-16% - да анықталды. Медициналық түсік түсіру кезінде әйелдерді бақылау шағымдардың жоқтығын көрсетті. Үшінші келу нәтижелері бойынша әйелдердің 74% – ы арасында ерте жатырдан кейінгі асқынулар арасында УДЗ бойынша 2 (6%) жүкті әйелде гематометр анықталғаны анықталды, ол кейіннен кеш асқынуларға-созылмалы эндометрит аясында етеккір циклінің бұзылуына алып келді. Медициналық түсік жасатуға дейін және одан кейін барлық әйелдер ИФТ әдісімен гормоналды мәртебені анықтады. 3 ай бойы емделушілер етеккір күнтізбесін, сондай-ақ дәрі-дәрмектік түсіктің соңында және кейіннен эндометрия мен аналық бездердің жай-күйін зерттеу үшін етеккір циклінің 5-күні жамбас ағзаларының УДЗ жүргізді.

Зерттеудің жаңалығы: әйелдердің гормоналды жағдайын зерттеу қауіпті әйелдер арасында аналық бездің ерте сарқылуының алдын алуға мүмкіндік береді.

Зерттеудің практикалық қолданылуы: 3 ай бойы дәрілік түсіктен кейін біріктірілген ауызша контрацептивтерді қолдану.

Түйінді сөздер: медициналық түсік түсіру, етеккір күнтізбесі, гормоналды стресс.

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Introduction

One of the main causes of gynecological diseases is the termination of pregnancy, after which complications are possible in the form of menstrual irregularities, pelvic inflammatory processes, and infertility. The risk of developing these complications depends on the general condition of the woman, the method of anesthesia and abortion, and the qualifications of medical personnel. All post-abortion complications can be divided into early and late ones [1, 2, 3]. Dilation and curettage has a high risk of trauma to the uterus and internal organs, as well as damage to the endometrium, and has not been used in developed countries since the late 60s of the last century. The frequency of early complications during curettage (according to Cochrane databases) is comparable to vacuum aspiration, however, some researchers believe that their number is 2 times higher with curettage than with vacuum aspiration [4,5, 6, 7, 8,]. For early medical abortion, the frequency of early complications is not high and does not exceed 0.1-5.4%, so this method of abortion is considered safe [9, 10, 11, 12, 13]. The course of physiological pregnancy is regulated by the hormone progesterone, due to which the growth of the endometrium occurs, blocking the activity of the myometrium, delivering oxygen to the fetus through the placenta and preparing the mammary glands for lactation [14,15, 16, 17, 18]. Medical abortion drugs, such as mifepristone and misoprostol, interfere with a woman's natural hormonal process. Mifepristone is a synthetic steroid drug that has an antiprogesterone effect [19, 20, 21, 22, 23]. Under the action of this drug, progesterone is blocked at the level of receptors in the endometrium and myometrium, against which the development of the trophoblast is suppressed, damage and rejection of the decidua, which in turn leads to uterine contractions with menstrual bleeding, which is medical abortion. Misoprostol is a synthetic analogue of prostaglandin E1. The mechanism of abortive action is associated with the contraction of the smooth muscle of the myometrium and the expansion of the cervix. Due to the stimulation of uterine contractility, the cervix opens and facilitates the opening of the cervix and the removal of the contents of the uterine cavity. A sharp decrease in the level of progesterone leads to hormonal imbalance, which leads to a malfunction of the centers of regulation of the menstrual cycle, primarily to ovarian dysfunction. As a result of a functional disorder of the ovaries, polycystic ovaries occur, which in the future can lead to infertility of anovulatory origin. Ovarian dysfunction is also reflected in the structure of the endometrium, in particular, as endometrial hyperplasia, polypous and endometriotic growths of the endometrium. The mammary glands, as target organs, in the regulation of the menstrual cycle are accompanied by mastopathy and mastalgia. All this led us to study the hormonal status of women after medical abortion in order to answer the question: Is medical abortion as safe as it is interpreted?

The purpose of the study: to study the hormonal status of women after medical abortion

Research methods and materials.

We have observed 50 women in the post-abortion period after medical abortion, who had no contraindications to pharmacological abortion performed in an outpatient clinic with a delay in menstruation up to 63 days. All pregnant women were examined before medical abortion according to the MZRK clinical protocol: a clinical blood test (hemoglobin, hematocrit), blood type and Rh factor, ultrasound of the pelvic organs to diagnose the gestational age and exclude ectopic pregnancy, a smear for the degree of purity of the vagina. The group was formed within 1 year. We chose a prospective cohort study as the study design, which is the gold standard of study.

Clinical blood analysis was calculated on the Sysmex XS-500i hematology apparatus, which automatically provides data on the quantity and quality of blood cells: erythrocytes, leukocytes and platelets. Patients took a general blood test in the morning on an empty stomach from a vein. A day in advance before blood donation, it was recommended to exclude psycho-emotional stress, physical activity, and the use of alcoholic beverages.

The blood type and Rh factor were determined by the most modern method - anti-A, anti-B and Anti-D-super zolicones, i.e. monoclonal antibodies. Determination algorithm: anti-A, anti-B zolicones are applied to a special tablet one large drop (0.1 ml), under the appropriate inscriptions. The test blood (0.01–0.03 ml) is dripped next to them, one small drop. Mix them and observe the onset or absence of an agglutination reaction for 3 minutes. If the result is doubtful, add 1 drop of 0.9% saline. Then they decipher the results of determining the blood group:

- - if the agglutination reaction occurred with anti-A zolikon, then the blood under study belongs to group A (II);
- if the agglutination reaction occurred with anti-B zolikon, then the blood under study belongs to group B (III);
- if the agglutination reaction did not occur with anti-A and anti-B zolicones, then the test blood belongs to group 0 (I);
- if the agglutination reaction occurred with anti-A and anti-B zolicones, then the test blood belongs to the AB (IV) group, as shown in the figure.

In order to determine the degree of purity of the vagina, a swab was taken from all pregnant women to determine the degree of purity of the vagina. In accordance with the results of the examination of the smear on the flora, the degree of purity of the vagina was determined. Conventionally, there are 4 degrees of purity of the vagina:

1. I degree - the environment of the vagina is defined as acidic. The state of the microflora is considered good, leukocytes do not exceed the value of 10. Pathogenic microorganisms are the minimum number. Most often, this degree of purity is found in girls and in girls who do not live sexually.

2. II degree - the environment of the vagina is defined as slightly acidic. This state of microflora is typical for a healthy woman who is sexually active, carefully monitors intimate hygiene and protects against STDs.

3. III degree - the environment of the vagina is defined as neutral. There are more than 10 leukocytes, there is a moderate amount of pathogenic microorganisms. When such microflora is detected, the doctor usually diagnoses colpitis and prescribes treatment depending on the predominant type of harmful microorganisms.

4. IV degree - the environment of the vagina is defined as alkaline. This means that a woman's resistance to infections is extremely low, and there are many pathogenic microorganisms in the secretion of the vagina. The inflammatory process is pronounced and requires treatment not only with oral medications, but also with suppositories, baths and medicinal tampons.

The first and second degrees of vaginal purity refer to the physiological conditions of the vaginal biocenosis and are found in healthy women, and the third and fourth degrees indicate the presence of an inflammatory process, i.e. about the development of primary or secondary colpitis of various origins. Pregnant women with the second and third degree of purity of the vagina were prescribed appropriate drugs for treatment.

Ultrasound of the small pelvis to detect pregnancy in the short term is carried out by the transvaginal method, i.e. a special sensor on which a condom is put on. The sensor is inserted into the vagina, advanced to the uterus and the fetal egg is determined. The fetal egg in the picture is defined as a dark rounded spot with a light rim and a heterogeneous structure. Normally, the egg should be determined in the uterine cavity. An egg can also be found inside the fallopian tube. This is how an ectopic pregnancy is diagnosed. Very rarely, the embryo enters the abdominal cavity, where it is able to attach to the internal organs. Examine all internal organs in turn. Then the sensor is removed, this ends the study. Ultrasound of the pelvic organs was subsequently performed at the end of medical abortion to exclude the remnants of the fetal egg and on the 5th day of the menstrual cycle after medical abortion was performed to study the state of the endometrium and ovaries.

Medical abortion was carried out according to the clinical protocol of the Ministry of Health of the Republic of Kazakhstan 2017 with a delay of menstruation up to 63 days in medical organizations of the outpatient level with the informed consent of the woman and the obligatory execution of the relevant medical documentation. Medical abortion scheme: mifepristone 200 mg once a day of the visit in order to prepare the removal of the embryo from the uterine cavity. Observation for 2 hours: assessment of the general condition of the patient and fixation of side effects of the drug, such as vomiting, weakness, diarrhea. In the absence of side effects of the drug, the patient is allowed to go home. If vomiting occurs, mifepristone is given again. Then after 36 hours the patient comes to the next stage of medical abortion: administration of misoprostol 800 mcg buccally for 30 minutes followed by observation for 5 hours. During this period, the onset of rejection of the fetal egg occurs, accompanied by bleeding and cramping pains. In a satisfactory condition, the patient is released home with an

invitation for a third visit in 10-14 days to confirm the abortion.

The third visit included a gynecological examination and pelvic ultrasound for the absence of remnants of the fetal egg and other early complications after the abortion, as well as post-abortion rehabilitation measures.

Before and after medical abortion, all women were determined hormonal status by immunochemiluminescent method using an automated analytical system Immulite 2000XPi: FSH, LH, TSH, prolactin, progesterone, estradiol. Immunochemiluminescent analysis is currently one of the modern methods of laboratory diagnostics of a woman's hormonal status. The method is based on an immunological reaction. At the final stage of identifying the desired substance, substances that glow in the ultraviolet, which are called luminophores, are attached, the level of luminescence of which is proportional to the level of the hormone. The device for changing the level of hormones is called a luminometer. A blood test was taken from a vein on an empty stomach, not earlier than 8 hours after the last meal and not earlier than 3 hours after drinking non-carbonated and unsweetened water. A day before blood donation, all women were advised to exclude stress, smoking, taking medications, and alcohol.

For 3 months after medical abortion, patients kept a menstrual calendar to monitor their menstrual cycle. Patients were trained to keep a menogram, which is a graphic representation of blood discharge during the menstrual cycle. An algorithm for completing the menogram was developed: 1. prepare a notebook in a cell, on which to draw a coordinate plane,

3. on a horizontal line it is necessary to mark days of the menstrual cycle, and on a vertical line, i.e. upwards it is necessary to specify quantity of bloody discharge from genital tracts on a principle: 1 cell is scanty menstruations, 3 cells are moderate menstruations, 5 cells are heavy menstruations.

4. To color the cells according to the above rule: if menstruations are scanty, then on the graph we fill in one cell, and later on if there are more menstrual bleedings, then we fill in 3 or 4 cells,

Patients independently noted the beginning and the end of menstruation, as well as the volume of daily blood loss during menstruation.

Translated with www.DeepL.com/Translator (free version)

Results. The age of women who applied to our clinic for abortion was on average 26-30 years (38%) (Figure 1).

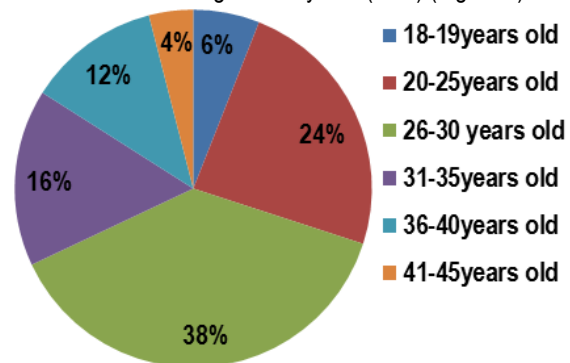


Figure 1. The age of pregnant women who had a medical abortion.

According to pregnancy parity, every second pregnant woman was multiparous, every third was multiparous, and every fifth was primiparous. Among repeat pregnant and multiparous women, 80% were breastfed; a short intergenetic interval, which caused the termination of pregnancy. In all primigravidas, the reason for refusing to prolong pregnancy was the lack of marital status. The rest of the pregnant women came for medical abortion due to social difficulties.

In history, the presence of extragenital diseases (EGD) was noted by 26% of pregnant women, and none of them had severe somatic diseases related to absolute contraindications to pregnancy prolongation (Fig. 2).

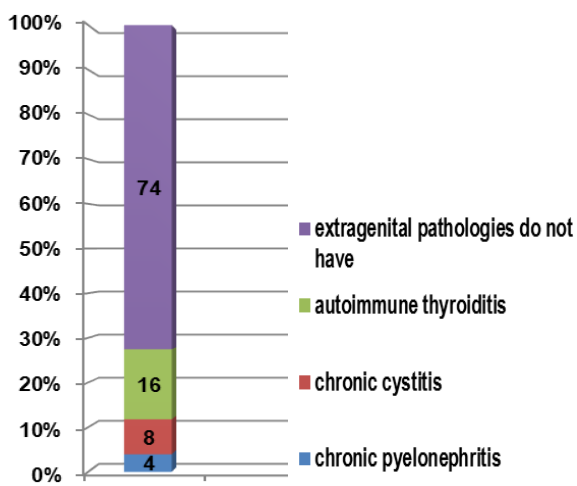


Fig. 2. Extragenital diseases among pregnant women who came for medical abortion

When collecting an anamnesis, it was revealed that 74% of pregnant women have already turned to the method of abortion as a medical abortion, and for the third time among them 12% of women. Only 26% of pregnant women came for the first time for medical abortion. Among 74% of women, among the early post-abortion complications in 2 (6%) pregnant women, ultrasound revealed a hematometer, which subsequently led to late complications - menstrual irregularities against the background of chronic endometritis.

There were no contraindications for medical abortion among our pregnant women.

According to the results of a clinical examination in the general blood test, the values of hemoglobin in our pregnant women were not lower than 100g/l in 90%, only in 10% hemoglobin was within 95g/l. In order to prevent a further decrease in hemoglobin during medical abortion, these women were prescribed iron-containing drugs in consultation with the therapist.

The smear results for the degree of purity of the vagina showed that every second woman had a second degree of purity of the vagina, which is considered within the normal range. The third degree of purity of the vagina was found in 34% of pregnant women, and the fourth - in 16%. These women were prescribed treatment for colpitis in parallel with medical abortion according to the clinical protocol.

During 1 hour of medical observation of pregnant women after taking mifepristone, no complaints were made, in connection with which they were allowed to go

home with an invitation to a second appointment in 36-48 hours. At the second visit, pregnant women were observed for 1-1.5 hours for the presence of bloody discharge, severe pain, and an allergic reaction to the patient's drugs. Due to the absence of complaints from the patients, all were released home with recommendations to keep in touch by phone and follow up in 10-14 days. According to the results of the third visit for the absence of remnants of the fetal egg, menstrual irregularities, and pelvic inflammatory processes, the following changes were revealed: among 74% of women, among early post-abortion complications in 2 (6%) pregnant women, ultrasound revealed a hematometer, which subsequently led to late complications - to menstrual irregularities against the background of chronic endometritis.

Statistical processing was carried out according to the Mann-Whitney U-test. The method is based on determining whether the area of intersecting values between two variational series is sufficiently small (a ranged series of parameter values in the first sample and the same in the second sample). The smaller the criterion value, the more likely it is that the differences between the parameter values in the samples are significant. First, a single ranked series was made from both compared samples, by arranging the units of observation according to the degree of increase in the sign and assigning a lower value to a lower rank. In the case of equal attribute values for several units, each of them was assigned the arithmetic mean of successive rank values. Then calculated by the formula:

$$U = n_1 \cdot n_2 + \frac{n_x \cdot (n_x + 1)}{2} - T_x$$

The hormonal status of women showed the following results: a significant decrease in FSH by 81.3%, and the level of the LH hormone increased by 52.3% compared with the value of these hormones before abortion ($p < 0.001$). (Fig. 3)

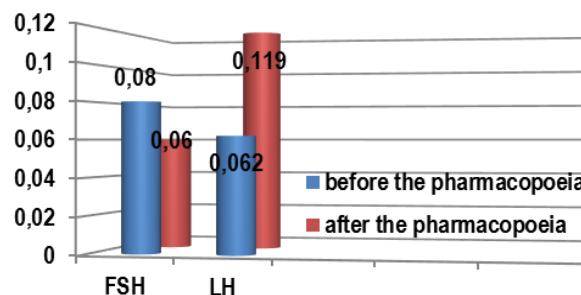


Fig. 3. The ratio of FSH and LH before pharmaceutical abortion and after pharmaceutical abortion.

In the pituitary gland, there is an increase in the production of gonadotropins due to excitability, including their synchrony is disturbed due to a violation of the secretion of gonadoliberins, which in turn leads to an imbalance in the secretion of FSH and LH, which will further lead to disruption of the maturation of follicles, the development of an anovulatory cycle.

The level of estradiol after medical abortion decreased by 2 times, which subsequently led to an increase in dopamine, which inhibits the production of prolactin by 47.6% ($p < 0.001$). (Fig. 4)

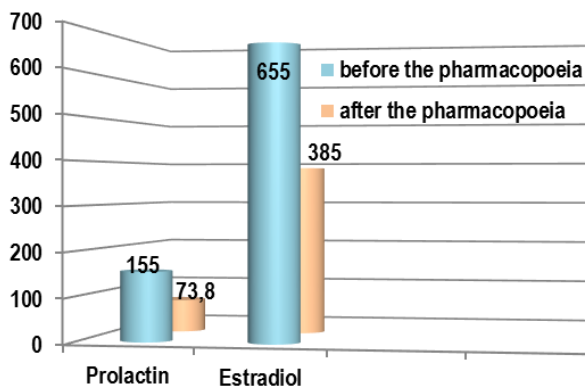


Fig.4. The ratio of prolactin and estradiol before and after pharmaceutical abortion

A significant decrease in TSH levels by 51.7% resulted in a decrease in estrogen levels, and the decrease in estrogen levels was more pronounced than the decrease in progesterone levels (68.5%). (Fig.5).

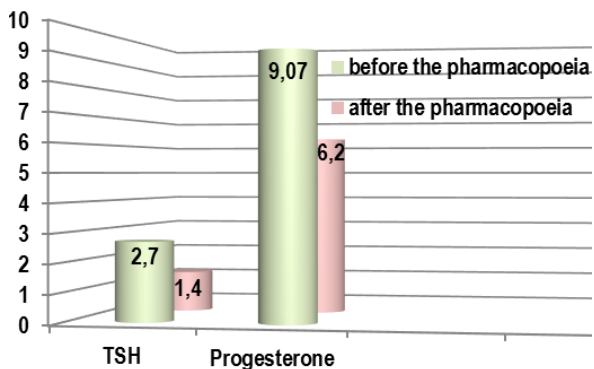


Fig.5. The ratio of TSH and progesterone to pharmabort.

The menogram showed menstrual irregularities in 34% of women after medical abortion: heavy menstruation of the type of hypermenorrhea was observed in 3 (17.6%) women, prolonged menstruation of the type of menorrhagia in 4 (23.5%) women, shortening of the menstrual cycle of the type of promenorrhea in 6 (35.4%) women, scanty menstruation of the type of hypomenorrhea in 4 (23.5%) women. There was no metrorrhagia in any case. Among the respondents with hypomenstrual syndrome, every second medical abortion as a termination of pregnancy was used not for the first time in history. Among the respondents with hypermenstrual syndrome in history, chronic inflammatory diseases of the female genital organs prevailed.

Ultrasound examination of the small pelvis after medical abortion showed no significant changes, but in the next 3 months in dynamics on the 5th day of the menstrual cycle in 14% of cases showed a picture of chronic endometritis. Every second woman developed a follicular cyst, ovarian anovulation was detected in 20%, and this group included respondents with repeated use of pharmacological abortion.

Discussion

The assessment of the hormonal background showed that after an abortion, there are violations of the processes of adaptation to the emerging pregnancy that have begun in the body and the activity of the endocrine system is disrupted by the "hormonal shock" mechanism. Pituitary dysfunction comes first in the mechanism of impaired

gonadotropin secretion (decrease in FSH levels and increase in LH).

After an abortion, the level of estradiol decreases, which leads to a decrease in the level of prolactin. A decrease in estradiol levels reduces the inhibitory activity of estrogens on the activity of dopaminergic tuberoinfundibular neurons of the hypothalamus, which leads to an increase in dopamine, which inhibits the production of prolactin. On the other hand, a decrease in the level of estradiol leads to a decrease in the sensitivity of prolactin-synthesizing cells to thyroliberin, which has prolactin-releasing activity. A sharp decrease in progesterone leads to anovulatory uterine bleeding.

Estrogens have a pronounced stimulating effect on the thyroid gland, primarily due to the intensification of the synthesis of thyroxine-binding globulin (TSG) in the liver. In addition, estrogens increase the sensitivity of pituitary thyrotrophs to thyroliberin. Hypoestrogenism reduces the sensitivity of thyrotrophs to thyroliberin, which could contribute to a decrease in TT secretion. Prolonged hypoestrogenism is one of the possible mechanisms for the development of secondary hypothyroidism in women with hypoestrogenic conditions (natural and surgical menopause, hypogonadotropic amenorrhea, resistant ovary syndrome, ovarian failure syndrome, etc.).

Hormonal stress after medical abortion affected the structural changes in the centers of regulation of the menstrual cycle: ovarian dysfunction against the background of an increase in LH levels and a decrease in FSH levels, a decrease in progesterone led to functional and organic changes in the ovaries and uterus.

Conclusion. The risk group for menstrual irregularities should include women who have a history of inflammatory processes of the pelvic organs, as well as women who, not for the first time, have resorted to abortion by medical abortion.

Thus, taking into account these hormonal disruptions in the body of a woman after medical abortion, in order to prevent or treat menstrual irregularities, as well as a post-abortion contraceptive, it is necessary to widely recommend the use of combined oral contraceptives for at least 3 months after medical abortion to women at risk ovarian hormonal stress. Repeated use of Mifepristone and Misoprostol drugs to terminate pregnancy in women leads to an anovulatory cycle, the pathogenesis of which is disturbances in the hypothalamic-pituitary system, as well as ovarian dysfunction against the background of inflammatory processes in the ovaries. For this category of women, it is necessary to correct the anovulatory cycle in order to prevent chronic anovulation, one of the symptoms of which may be infertility and secondary amenorrhea.

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