

Evaluation of Efficiency of Various Methods of Interruption of Pregnancy in II Trimester

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ABSTRACT

The work was aimed to evaluate efficiency of interruption of late pregnancy with the use of anti-progesterone. Has been used the Russian analogue of mifepristone - "Penkrofton" (company "Penkroft-Farma"). Penkrofton was tested on 102 women with gestation period ranged from 14 to 22 weeks. The control group was consisted of 80 pregnant women, who were subjected to intra-amniotic infusions of 20% sodium chloride solution. Among these 102 patients 90 had spontaneous motor activity of uterus. In 11 cases additionally were used prostaglandin E₁-mizopristol 200 mcg x 2 tab. In one case, as a result of congenital abnormality (acrania, 17 to 18 weeks) surgical abortion of fetus was performed. The clinical effect in case of Penkrofton mono-therapy was 87,2%, and in case of combined therapy with Penkrofton and prostaglandin E₁ - 19,6%. According to the results of investigations could be concluded that interruption of the late pregnancy (according to medical indications) with the use of Penkrofton is the simple, safe and quite efficient method for artificial interruptions of pregnancy. Therefore, it could be considered as the optimal method.

KEYWORDS: *reproductive function, pregnancy, abortion, antiprogestosterone, prostaglandins*

Artificial interruption of late pregnancy remains as one of the most actual and topical problems in obstetrics. It is conditioned by the fact that difficulties of surgical interventions and frequency of complications respectively, rise as gestation period increases. Thus, according to the data of investigations carried out within the frame of joint program for study of abortion (JPSA), the frequency of complications in case of interruptions of pregnancy in II trimester is 3 to 4 times higher than in case of I trimester (7,8% - gestation period up to 12 weeks; 25,1% - gestation period 13 weeks and more) [1,5].

Annually, 20 to 30 million abortions are produced in the world, of them 15% to 18% are performed in II trimester. Meanwhile, currently used methods for artificial interruptions of late pregnancy are not sufficiently effective and safe. The task - to find the new methods and along with that to improve existing ones acquires an increasing importance [5,7].

In this connection, topicality of further investigations of mechanisms of various medicaments used for artificial interruptions of pregnancy in II trimester is obvious [2,6].

Several authors consider that surgical abortion with the preliminary use of uterine dilators, is the quite simple method for interruption of late pregnancy. Widening of the neck of the uterus could be achieved with the use of laminarin, lamincelle and dilapan [4,7].

Study of the late results of such abortions has shown that isthmio-cervical insufficiency develops mainly after surgical abortions, especially in case of first pregnancy. The risk of abortions in II trimester and premature labors increase 3 times in women who underwent an operation for artificial interruption of pregnancy. Furthermore, the mortality rate in women, after using of this method, consists for about 4,9 of the 100 000 abortions [1,5].

In the late years the neurosurgical, noninvasive methods for interruption of pregnancy are elaborated using the following pharmacological remedies: hypertonic agents, and oxytocin, prostaglandins, antiprogestagens.

Extra- or intraamniotic infusions of hypertonic solutions could be used for stimulation of contractile activity of uterus. The mechanism of action is still vague and uncertain. There are suggestions that excitation of amnion and chorion leads to release of prostaglandins causing contraction of uterus and interruption of pregnancy.

In II trimester of pregnancy abortion can be induced by intravenous infusions of synthetic oxytocin. Oxytocin is active and efficient in case of intramuscular injections as well, however in most cases it causes hypertonus of uterus.

In the late years, in practice, experience in use of biologically active agents - prostaglandins with the purpose of interruption of late pregnancy without operative interventions is sufficient.

The prostaglandins (PG) are products of hydroxylation of unsaturated fatty acids containing cyclopentanphenanthren circle. According to structure of the above-mentioned circle, the five group of prostaglandins are distinguished: "A", "B", "E", "F" and "D". In reproductive physiology, the prostaglandins E and F are of particular importance. The immediate precursor of prostaglandins is the arachidonic acid released from phospholipids after action of phospholipase A₂ [7].

Application of prostaglandins for interruption of pregnancy (13 to 20 weeks), as alternatives of surgical intervention was first described in 1971.

The classic investigations for studying of prostaglandins have shown that they result in contraction of myometer, contribute to softening and smooth down of neck of the uterus.

Application of classic prostaglandins F2a and E2 is quite effective, however it 's frequently accompanied by side effects, involving gastro-intestinal system in particular. Therefore using possibilities are limited.

In the late years situation have changed, since synthetic analogues of prostaglandins type E1 are available. They are more specific for myometer and produce fewer side effects.

In order to interrupt the pregnancy in II trimester, the intravenous, intramuscular, extra-amniotic, intra-amniotic, intra-vaginal and per-oral administration of prostaglandins has been used.

During the last five years the synthetic steroid Penkrofton, Mifepristone or RU-486 with antiprogesterone activity was used for interruption of late pregnancy. The preparation has a high affinity to progesterone receptors and affect as their antagonists.

The antiprogesterone activity of the above-mentioned drug is determined by bloking of progesterone at the level of their receptors in endometry, myometry and trophoblast. Moreover, it reveals antigluocorticoid effect binding with gluocorticoids receptors.

Antiprogestagens have several advantages compared to prostaglandins used for interruption of pregnancy.

It is well known that the main regulators of functional activity of uterus are steroid hormones whose action is realized through the appropriate receptors. It is detected that in case of underdeveloped pregnancy number of progesterone receptors in decidual tissue are reduced and its production is decreased as well compared to normal pregnancy [3,8].

The antiprogesterone increases contractile activity of myometry, results in production of endogenous prostaglandins and increases number of prostaglandin receptors in neck of the uterus. Painless softening and widening of the neck of the uterus is the precursory symptom at the beginning of contraction of uterus [9,10].

MATERIAL AND METHODS

Have been used the Russian analogue of mifepristone - "Penkrofton" (company "Penkroft-Farma") for interruption of late pregnancy according to the medical indications.

Penkrofton was used by the following scheme: 200 mg (1 tab.) Penkrofton a day. After 24 hours the repeated taking of 200 mg (1 tab.) Penkrofton. After 48-72 hours from the first taking of Penkrofton, in the absence of regular birth activity, the repeated examination with the purpose of evaluation of maternal passages and selecting the method for stimulation of uterine contractile activity was performed.

Penkrofton was tested in 102 women. In 46 cases the intrauterine death and in 56 cases the congenital abnormalities of fetus were stated. In 45 cases the gestation period comprised 13-16 weeks; in 35 cases - 17-19; and in 22 cases - 20-22 weeks.

The control group was consisted of 80 pregnant women, who were subjected to intra-amniotic infusions of 20% sodium chloride solution. The amount of infused solution (150-250 ml) was depended on gestation period and it was 30 to 50 ml less than evacuated amniotic fluid volume.

In 36 women the gestation period corresponded to 13-16 weeks; in 28 cases - to 17-19 weeks and in 16 cases - to 20-22 weeks.

In 37 cases the intrauterine death was diagnosed and in 43 cases the congenital abnormalities of fetus was detected.

48 women in the group I were gravida I, and 54 - gravida II.

The control group involved 33 gravida I, and 47 - gravida II women.

All women who were under observation were with age, ranged from 15 to 39 years and somatically healthy (indications for interruptions of pregnancy were not related to somatic diseases).

RESULTS AND DISCUSSIONS

Of the 102 patients in 90 pregnant, who received 200 mg Penkrofton during 2 days, without any additional drags, developed uterine motor activity with subsequent emptying. In 11 cases the additional peroral intake of prostaglandin - Mizoprostol (200 mg - 2 tab.), and in 1 case (congenital abnormalities of fetus) surgical abortion were needed.

In the control group involuntary uterine activity developed in 41 women of the 80. 39 patients needed stimulation of uterine motor function. All patients from the control group underwent scraping of the uterine cavity.

The blood loss, during interruption of pregnancy with antiprogesterone, consisted approximately 99,52±8,80 ml. In case of 20% sodium chloride solution the mean value of blood loss was 2 to 3 times more than in case of interruption of pregnant with Penkrofton and corresponded to 210±17,54 ml.

The cervical rupture during interruption of pregnancy with the use of Penkrofton was not detected, while in case of 20% sodium chloride solution, cervical disorders (I and II degree) were observed in 19 patients of the 80.

In the control group, the hypotonic bleeding was manifested in 27 cases; in 20 cases - the placental remnants in uterine cavity were revealed. In the basic group the placental remnants in uterine cavity were

revealed only in 5 cases, and the hypotonic bleeding - in 3 cases.

In post-abortion period, ultrasonic examination revealed the uterine involution, and clinical signs of purulent-septic complications in both, the basic and the control groups.

The results of carried out investigations have shown that in the basic group uterine involution had the physiological course and only in 8 cases the uterine sub-involution was revealed. In the control group the uterine sub-involution was detected in 24 cases.

As for post-abortion period, the septic - purulent complications in the basic group was revealed in 4

cases, and in the control group they were observed in 33 cases (endometritis - 24 case and pelvioperitonitis - 9 case).

The comparative data obtained after use of the above-described methods for interruption of pregnancy are presented in *Tab.1*.

Thus, it could be concluded that interruption of the late pregnancy (according to medical indications) with the use of Penkrofton is the simple, safe and quite efficient method for artificial interruptions of pregnancy. Therefore, it could be considered as the optimal method.

<i>Complications during interruption of pregnancy in II trimester</i>	<i>The basic group</i>		<i>The control group</i>	
	Number	%	Number	%
Cervical ruptures	-	-	19	23,7
Hypotonic bleeding	3	2,8	27	33,7
Placental remnants in uterine cavity	5	4,9	20	25
Uterine subinvolution	8	7,8	24	30
Purulent-septic complications	4	3,9	33	41,2

Tab.1 *Complications during interruption of pregnancy in II trimester.*

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Оценка эффективности различных методов прерывания беременности в II триместре

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Р Е З Ю М Е

Целью исследования являлось установление характера влияния антипрогестерон – мифепристона на гладкую мускулатуру матки и индукцию самопроизвольного позднего аборта, по медицинским показаниям. Применен Российский аналог мифестопрестона – пенкрофтон (компания “Penkroft-Farma”). Пенкрофтон был использован у 102 беременных женщин. У 90 пациенток спонтанно развилась моторная деятельность матки, в 11-ти случаях дополнительно понадобилось применение простагландина E₁-мизопростол по 200 мкг x 2 таб. В одном случае, при пороке развития плода (акrania, 17-18 нед.) возникла необходимость хирургического аборта. Результаты проведенного клинического исследования позволяют заключить, что прерывание беременности в поздние сроки, по медицинским показаниям с помощью пенкрофтона является простым, безопасным и достаточно эффективным способом искусственного прерывания беременности.

КЛЮЧЕВЫЕ СЛОВА: *функция репродукции, беременность, аборт, антипрогестерон, простагландины*