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COMPLICATIONS OF INTRAUTERINE DEVICES IN THE POSTPARTUM
PERIOD, THEIR TREATMENT AND PREVENTION

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Annotation

Contraception in the postpartum period is an important component of maintaining a woman's health. The monograph shows the principles of choosing a method of contraception in the postpartum period and describes the possible methods.

The use of a postpartum intrauterine device (natural methods of contraception, intercourse, lactational amenorrhea, non-hormonal methods, pure gestagenic contraceptives, combined hormonal contraceptives) was noted as an advantage of using various methods of contraception as a temporary family planning method.

This monograph examines modern contraceptives, demonstrating innovative contraceptive technologies.

The monograph is intended for 5-6 year students, masters and clinical residents of the medical faculty.

Аннотация

Туғруқдан кейинги даврда контрацепция аёлларнинг соғлиғини сақлашда муҳим таркибий қисм ҳисобланади. Монографияда туғруқдан кейинги даврда контрацепция усулини танлаш принциплари кўрсатилган ва мумкин бўлган усулларнинг тавсифи берилган.

Туғруқдан кейинги бачадон ичи воситасидан фойдаланиш (табиий контрацепция усуллари, жинсий алоқада бўлмастик, лактацион аменорея усули, гормонал бўлмаган усуллар, соф гестаген контрацептивлари, эстродиол гормонал контрацептивлар) вақтинчалик оилани режалаштириш усули сифатида турли контрацепция усулини қўллашнинг афзаллиги таъкидланган.

Ушбу монографияда контрацепция воситаларида инновацион технологияларни намойиш этадиган замонавий контрацептивлар ўрганилади.

Монография даволаш факультети 5-6 курс талабалари, магистрлар ва клиник ординаторлар учун мўлжалланган.

Аннотация

Контрацепция в послеродовом периоде - важный компонент сохранения здоровья женщины. В монографии показаны принципы выбора метода контрацепции в послеродовом периоде и дано описание возможных методов.

Использование послеродовой внутриматочной спирали (естественные методы контрацепции, половой акт, метод лактационной аменореи, негормональные методы, чистые гестагенные контрацептивы, комбинированные гормональные контрацептивы) было отмечено как преимущество использования различных методов контрацепции в качестве временного метода планирования семьи. .

В этой монографии исследуются современные противозачаточные средства, демонстрирующие инновационные технологии контрацепции.

Монография предназначена для студентов 5-6 курсов, магистров и клинических ординаторов лечебного факультетов

Abbreviations

IUD – Intrauterine Device
WHO – World Health Organization
STIs – Sexually Transmitted Infections
SD – Severe Dysmenorrhea
COCs – Combined Oral Contraceptives
PID – Pelvic Inflammatory Disease
LAM – Lactational Amenorrhea Method
LNG – Levonorgestrel
RH – Reproductive Health
MOH – Ministry of Health
PPP – Postpartum Period
POP – Progestin-Only Contraceptives
USG – Ultrasound Examination
FGRS – Fetal Growth Restriction Syndrome
CIN – Cervical Intraepithelial Neoplasia
EC – Emergency Contraception
DVT – Deep Vein Thrombosis
ARVI – Acute Respiratory Viral Infection
PE – Pulmonary Embolism
E – Endometriosis
IHD – Ischemic Heart Disease

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Introduction

The onset of unintended pregnancy shortly after childbirth is a significant factor negatively affecting women's reproductive health. The selection of the most effective and safe contraceptive methods and tools during the postpartum period is of paramount importance. Pregnancy termination in the months following childbirth can severely impact a woman's overall health and reproductive system, being one of the primary causes of gynecological morbidity and subsequent dysfunction of the hypothalamic-pituitary-ovarian axis. Such pregnancies may lead to the development of placental insufficiency, births characterized by undernourishment and insufficient fetal growth, an increased risk of spontaneous abortion, and higher rates of preterm delivery.

During the postpartum period, a woman's body undergoes crucial physiological processes, during which most of the changes in the reproductive organs, endocrine, nervous, cardiovascular systems, and mammary glands that occurred due to pregnancy and childbirth are reversed. By the end of the first postpartum week, the weight of the uterus typically reaches 50-60 grams, and by the 10th day, the cervical canal is fully formed, with the external os closing by the third to fourth week. The regeneration of the uterine lining is usually completed by the 6th to 7th week postpartum, while the placental site heals by the 8th week.

Family planning, preserving women's health, reducing maternal and child mortality, and preventing abortion-related diseases are achieved through the appropriate use of modern contraceptive methods [11,13,14,15].

Intrauterine contraception (IUC) is one of the most widespread, reliable, and safe methods for preventing unintended pregnancies. Currently, more than 100 million women globally use this method, with 80% residing in China, 6% in developed countries, 0.5% in African countries, and the remainder in developing nations. According to data from the Ministry of Health, 14.3% of Russian women use intrauterine devices (IUDs).

Among contraceptive methods, the IUD ranks second only to sterilization [30]. Over 50 types of IUDs are available today, used by approximately 100 million women to prevent unintended pregnancies [5]. Some sources report that as many as 150 million women use IUDs [29]. The majority of IUD users are in China, accounting for 40% of the total. The use rates of IUDs vary significantly across different continents, with higher usage in Asia (e.g., 15% in Jordan and 49% in Korea). In European countries, the rates are somewhat lower, such as 3% in the Netherlands and 23% in Norway, while in North America, the rate is extremely low, at just 2% in the United States [28].

In other countries, such as Vietnam, Sweden, and Finland, the use of IUDs is reported to be high. In our country, the usage rate stands at 65.6%. The application

of IUDs among women of advanced reproductive age (35 years) reaches 44%, while among women with a history of four or more deliveries, it reaches 62%.

There is limited and somewhat unreliable historical information on when, where, and under what conditions intrauterine contraception began to be used. It is known that even in ancient times, some African tribes used small stones in the uteri of camels to prevent pregnancy during long and arduous caravans (Speroff L., 2005). Similar methods were used by ancient Greek physicians, including Hippocrates, who may have employed hollow lead tubes for diagnostic or contraceptive purposes.

The modern IUD can trace its origins to the early 19th century with the use of small, button-like vegetable pessaries for contraception. These devices featured a stem inserted into the cervical canal, and their surface was coated with floral motifs.

By the late 19th century, cervical caps with lateral horns inserted into the uterine cavity were sometimes used, not only for contraception but also to correct uterine prolapse (Janowitz, 1975). These contraceptives were made from materials such as ivory, wood, oak, glass, tin alloys, and even precious metals like diamond-studded gold and platinum (Tatum H.J. et al., 1975).

In 1902, German scientist Karl Hollweg invented a cervical pessary resembling a metal spring (Speroff L., 2005; Thiery M., 1997). In 1923, Karl Pust developed a ring pessary tied to a glass rod that was inserted into the uterine cavity. One end of this pessary was connected to a glass plate that remained outside the external os. This design served as a bridge between the external genitalia, the vagina, and the upper genital tract, creating favorable conditions for the emergence of pelvic inflammatory diseases (PID). Due to the prevalence of gonorrhea at that time and its poor response to treatment, such devices were met with skepticism by physicians.

According to statistics, 91% of IUD users are housewives [25]. Recent data indicates that 16% of women of reproductive age use IUDs [30]. The use of IUDs is common among younger women (79.85%), married women (92.1%), and those with active sexual lives (94.98%), as noted in many sources.

For contraceptive purposes, IUDs are used by 16.22% of women aged 18-25, 48.72% of those aged 26-35, 62.7% of those aged 36-40, and 38.46% of women over 40. The effectiveness of IUDs is 99.8% (with a Pearl Index of 2.0), and this method does not exert systemic adverse effects on the body. Its simplicity, suitability for use across various social strata, and rapid restoration of fertility after removal contribute to its widespread application. Despite its advantages, IUDs are also associated with higher incidences of inflammatory processes, the development of uterine fibroids and adenomyosis, and disorders such as mastopathy [7].

While the high effectiveness of this method is notable, its associated complications must also be addressed. Common adverse effects include pain syndromes (14%), menstrual irregularities (1.5-20%), expulsions (0.7-30%), cervical pathologies (20.4%), pelvic inflammatory diseases (0.43-9%), perforation (0.2-1.2%), pregnancy (0.5-2%), and ectopic pregnancy (1.9-9.25%). Moreover, IUD users often report higher incidences of somatic pathologies such as anemia (80.6%), gastrointestinal disorders (32.3%), and urinary tract diseases (12.5%). Pregnancy and childbirth following the removal of an IUD are also often associated with complications, including emesis syndrome ($74.1\pm 2.7\%$), the risk of miscarriage ($42.6\pm 3.0\%$), polyhydramnios ($5.3\pm 1.4\%$), placenta previa ($4.1\pm 1.2\%$), PROM ($17.8\pm 2.4\%$), labor abnormalities ($8.4\pm 1.7\%$), third-stage hemorrhage ($6.4\pm 1.5\%$), neonatal asphyxia ($36.9\pm 3.0\%$), and perinatal mortality (19.0%). The frequent occurrence of such complications prompted this research.

Numerous studies in the United States have conducted systematic reviews and meta-analyses evaluating the postpartum insertion timing of IUDs, their types, and delivery methods, to assess expulsion rates. These studies involved over 8,000 women and included 48 different studies.

In the past decade, significant research has focused on the clinical aspects of IUD use, particularly its mechanisms of action.

Previously, one of the most prevalent hypotheses explained the contraceptive effect of the IUD as an abortive response. The insertion of a foreign body into the uterine cavity alters its bioelectric activity and hemodynamics, increasing muscle tone, spontaneous contractile activity, and tubal peristalsis. The peak myometrial activity coincides with the time when the fertilized egg reaches the uterus. Therefore, the contraceptive action of the IUD is attributed to heightened reflex reactions and increased excitability of the uterus and tubes.

Consequently, the fertilized egg enters the uterine cavity prematurely and, due to an unprepared endometrium and trophoblast, implantation becomes impossible. Even if implantation occurs, the pregnancy often terminates as an early miscarriage.

The insertion of a foreign body into the uterine cavity triggers biochemical and cellular reactions characterized by specific changes in endometrial tissues, such as increased vascular permeability and subsequent edema, stromal infiltration typically involving leukocytes, including neutrophil granulocytes, mononuclear cells, and macrophages. This response is common to both inert and contraceptive foreign bodies.

In 2009, based on an analysis of clinical and epidemiological studies in the field of family planning, the World Health Organization (WHO) developed medical criteria for selecting contraceptive methods according to the health or medical

conditions of women. In 2012, adapted medical criteria for contraceptive methods were published for the Russian Federation.

The classification divides these criteria into four categories:

1. Situations where no restrictions exist for the use of the contraceptive method.
2. Situations where the benefits of the method generally outweigh any theoretical or proven risks.
3. Situations where the theoretical or proven risks usually outweigh the advantages of the method.
4. Situations where the use of the contraceptive method poses an unacceptable risk to a woman's health.

For patients in the first category, there are no restrictions when choosing contraceptives. For women in the second category, all benefits and drawbacks must be carefully weighed, with careful medical supervision.

When dealing with women in the third category, the severity of the condition, potential side effects, and the overall suitability of the contraceptive

Chapter I: Unique Aspects of the Postpartum Period: Physiology and Pathology. General Guidelines for Contraception

1.1. Changes in Women During the Postpartum Period and Their Care

The postpartum period encompasses the initial six weeks following childbirth. During their stay in the maternity ward, patients should receive guidance on the care of newborns, breastfeeding practices, their associated capabilities and limitations, and overall postpartum care. Newly delivered mothers often require psychological support to better adapt to the presence of a new family member and the physiological changes occurring within their bodies.

Lochia Lochia refers to postpartum uterine discharge. In the initial hours following childbirth, it is typically bloody, gradually transitioning to a reddish-brown color over the next three to four days. From days 5 to 22, the discharge may become serous-mucous and appear light pink, sometimes lasting up to six weeks before turning yellowish-white. Breastfeeding and the use of oral contraceptives do not impact the nature or duration of lochia.

Uterine Involution Six weeks postpartum, the uterus generally returns to its pre-pregnancy size, weighing approximately 50-60 grams.

Nutrition During lactation, to support breastfeeding, a postpartum woman should consume an additional 300 kcal daily. Apart from iron and calcium, all essential nutrients required for breastfeeding can be obtained from a standard diet.

Approximately 5 kg of fat accumulated during pregnancy serves as an energy reserve for sustaining lactation and compensating for energy deficits.

Physiological Amenorrhea Women who breastfeed tend to experience longer durations of amenorrhea. In non-breastfeeding women, ovulation typically occurs within 70-75 days postpartum, with approximately 60% resuming menstruation by the 12th week post-delivery. The duration of anovulation in breastfeeding women depends on the frequency and duration of breastfeeding sessions and the introduction of supplemental feeding for the newborn.

Exclusive breastfeeding on demand, without nighttime interruptions, results in ovulation occurring in only 1-5% of cases within the first six months postpartum (lactational amenorrhea). To maintain lactational amenorrhea, the interval between feedings should not exceed four hours during the day and six hours at night, with supplemental feeding accounting for no more than 5-10% of the total nutritional intake.

Contraindications for Breastfeeding Contraindications include:

- Maternal use of alcohol or drugs.
- Galactosemia in the newborn.
- Maternal HIV infection.
- Untreated tuberculosis in the mother.
- Treatment of maternal breast cancer.
- Maternal use of medications such as bromocriptine, cyclophosphamide, cyclosporine, doxorubicin, ergotamine, lithium, methotrexate, phencyclidine, radioactive iodine, among others.

Suppression of lactation can be achieved with modulators of prolactin receptors and antagonists such as bromocriptine (Parlodel) at doses of 2.5 mg or higher daily or cabergoline (Dostinex) until lactation ceases.

Ovulation Suppression The suppression of ovulation in breastfeeding women is linked to elevated levels of prolactin. Prolactin levels remain high for up to six weeks postpartum, whereas they normalize within three weeks in non-breastfeeding women. Conversely, estrogen levels remain low in breastfeeding women and rise to normal levels within two to three weeks postpartum in non-breastfeeding women.

In the United States, hospital stays post-vaginal delivery are limited to two days and up to four days following cesarean sections. However, in many hospitals, these durations are often reduced to one and three days, respectively. After vaginal delivery, patients receive care for the perineum, breasts, and contraceptive counseling. Physicians are expected to provide psychological support and offer home care advice for the patient and newborn.

After a cesarean section, patients are advised on wound care and physical activity, with recommendations to avoid lifting heavy objects ("nothing heavier than the baby") and activities such as driving.

Postpartum Care Following Vaginal Delivery

Routine care for women post-vaginal delivery includes monitoring body temperature, uterine involution, and the nature of postpartum discharge (lochia), as well as ensuring proper perineal care. If there are no contraindications, breastfeeding support and pain management are included. Non-steroidal anti-inflammatory drugs are typically used for analgesia. Women with third- or fourth-degree perineal tears may require specific pain relief.

After an episiotomy, wound care involves observing for swelling or hematoma. Perineal sanitation and stitches should be maintained after each urination and defecation with warm water and soap or antiseptic solutions (such as diluted potassium permanganate) from front to back, ensuring the hygiene of the vaginal and perineal areas.

If sutures are present in the perineum, reducing pelvic floor muscle strain and regulating bowel movements with mild laxatives is recommended. If severe pain occurs, the possibility of hematoma in the vulva, vagina, or retroperitoneal space should be considered.

Patients with hemorrhoids may use ice packs, a fiber-rich diet, mild laxatives, and hemorrhoidal suppositories.

If a patient's body temperature rises above 38°C on two or more measurements within the first 10 days postpartum (excluding the immediate postpartum fever), additional tests such as blood and urine tests, and ultrasounds should be ordered to identify potential infectious complications.

Post-Cesarean Section Care

Post-cesarean management involves sufficient pain control, wound care, prevention of wound infections, monitoring uterine involution, and observing for vaginal discharge. Postoperative pain relief includes medications that do not contribute to the development of postoperative ileus. Laxatives are often prescribed.

Non-steroidal anti-inflammatory drugs are administered to reduce pain caused by uterine contractions. Antibiotic prophylaxis in the perioperative period typically involves first- or second-generation cephalosporins (2 g during surgery, followed by 1 g twice daily).

Breast Care During the Postpartum Period

Breast care should be provided to all postpartum women, regardless of their intention to breastfeed. Nipple preparation should ideally start during pregnancy (e.g., massage and treatment with tannins like oak bark infusion). Lactation onset often results in bilateral breast enlargement, tenderness, firmness, increased local temperature, and colostrum production within 24-72 hours after delivery. Body temperatures may rise to 37.8-39°C, known as “milk fever,” which necessitates ruling out other fever causes like mastitis, endometritis, or thrombophlebitis. Ice packs, supportive bras, analgesics, and anti-inflammatory medications help alleviate pain associated with breast engorgement.

Breastfeeding women may face issues such as nipple pain and erosion. Milk remnants in the ducts create a breeding ground for bacteria, exacerbating nipple erosion. It is recommended that women wash their hands with soap before and after nursing and maintain breast hygiene by washing the nipples with soap and drying them with a clean towel.

1.2. Postpartum Complications

Common postpartum complications include hemorrhage, infectious complications (e.g., wound infections, endometritis, mastitis), and postpartum depression.

Postpartum Hemorrhage Postpartum hemorrhage typically occurs within the first 24 hours after delivery while the patient is still in the obstetric hospital but can also develop several weeks later due to retained products of conception (e.g., placental or membrane remnants). Endometritis and mastitis commonly develop one to two weeks postpartum. Postpartum depression can emerge at any point but often goes undiagnosed.

Postpartum Hemorrhage Defined Postpartum hemorrhage refers to blood loss exceeding 500 mL after vaginal delivery or over 1,000 mL following a cesarean section. Local obstetricians define significant blood loss as exceeding 0.5% of the woman's body weight.

Severe hemorrhage, defined as more than 20% of blood volume loss (>1-1.2 L), is a primary cause of maternal hypotension and a leading factor in maternal mortality.

The potential for sudden, massive postpartum hemorrhage is related to the speed of uteroplacental blood flow (600 mL/min). The limitation of blood loss postpartum relies on adequate myometrial contractions at the placental attachment site to compress the open vessels.

Early and Late Postpartum Hemorrhage Early postpartum hemorrhage occurs within 24 hours of delivery. Late postpartum hemorrhage arises after 24 hours.

Causes of Postpartum Hemorrhage The most common causes include uterine atony (hypotension), retained products of conception (e.g., placental and

membrane fragments), and trauma to the birth canal. Less common causes include low placental implantation (in the lower uterine segment with poor contractile capability) and coagulation disorders. The use of forceps and vacuum extraction increases the risk of cervical and vaginal injuries.

Management of Postpartum Hemorrhage When investigating the cause of bleeding, patients should be prepared for intensive infusion therapy and blood transfusion. If blood loss exceeds 2-3 liters, disseminated intravascular coagulation (DIC) may develop, necessitating the administration of coagulation factors and platelets.

Rarely, significant hypovolemia and hypotension can lead to pituitary infarction (Sheehan's syndrome), resulting in prolactin deficiency or secondary amenorrhea and subsequent agalactia (lack of lactation).

Genital Tract Tears Vaginal Tears and Hematomas The birth canal is inspected immediately postpartum using speculums; identified tears are sutured. Deep vaginal tears may involve arterial vessels, causing significant bleeding or bruising. Suturing requires adequate local or general anesthesia.

Large hematomas are surgically opened, with damaged vessels identified, ligated, and tissues sutured. Occasionally, extensive hematomas in the retroperitoneal space may develop.

The clinical signs of such hematomas include lower back pain, anemia, and a drop in hematocrit. Diagnosis is confirmed via ultrasound or, if necessary, CT scanning. Small hematomas are managed conservatively, with anemia treated accordingly. In unstable cases, surgical evacuation and vessel ligation are required.

Uterine Atony (Hypotension)

Uterine atony is the primary cause of postpartum hemorrhage. The risk of postpartum hemorrhage increases in patients with chorioamnionitis, those treated with magnesium sulfate, cases of multiple pregnancies, fetal macrosomia, a history of postpartum hemorrhage, and in women with high parity (>5 deliveries). Uterine anomalies and fibroids can also affect uterine contractility, leading to atony and hemorrhage.

Diagnosis of uterine atony is based on palpation, revealing a soft, enlarged, and poorly contracted uterus. The uterine fundus may not be firm, and the lower segment may be relaxed. If uterine atony (hypotension) is suspected, the following measures, as recommended by clinical guidelines, are advised:

1. **Uterine Massage:** To encourage contraction, combined with an infusion of oxytocin (10-20 IU/L) for prophylaxis. If ineffective, an additional 20 IU of oxytocin is administered intramuscularly. Ensure the bladder is emptied, as a

full bladder can interfere with uterine contraction. If bleeding persists, administer methylergonovine 0.2 mg IM or IV, noting that maternal hypertension is a contraindication.

2. **Additional Medication:** If bleeding continues, 250 mcg of prostaglandin F₂-alpha (PGF₂α) is injected into the myometrium (transabdominally or transcervically), with a maximum dose of 2 g administered within 15 minutes if needed. Rectal administration of 1,000 mcg of misoprostol is also an option.

Examination and Repair During persistent bleeding, a thorough examination of the birth canal should be conducted. If no visible tears are found, manual exploration of the uterine cavity is performed to remove retained products of conception or identify uterine rupture (especially following a prior cesarean scar). Concurrently, intensive infusion therapy with colloid and isotonic solutions is initiated, and blood products are prepared.

Uterine Artery Embolization If bleeding persists and is not rapid or massive, uterine artery embolization under radiographic guidance may be an alternative to hysterectomy, provided the conditions allow. If embolization is delayed or ineffective, laparotomy with ligation of the pelvic vessels (e.g., hypogastric, uterine, ovarian arteries) or hysterectomy is performed.

Retained Placental Fragments

The placenta and membranes are carefully inspected immediately after delivery to check for integrity and any signs of torn vessels, which could indicate retained accessory lobes. Retention of small fragments of placenta and membranes can be challenging to assess during vaginal delivery. Residual placental tissue typically passes with lochia during uterine contractions. However, retained products can lead to endometritis and postpartum hemorrhage in some cases.

When retained placental fragments are suspected postpartum, manual removal (if the cervix is not contracted) or instrumental uterine revision is performed. If bleeding continues after an instrumental revision (curettage), placenta accreta should be considered.

Placenta Accreta

Placenta accreta results from the abnormal adherence of the placenta to the uterine wall, sometimes extending into the myometrium, preventing complete separation and leading to postpartum hemorrhage. Risk factors include placenta previa and prior uterine surgeries.

Clinically, placenta accreta may present as a delay in the third stage of labor or incomplete placental separation. If the third stage lasts over 30 minutes without

signs of placental detachment, manual removal is performed under adequate anesthesia. Fragmented placental tissue suggests a diagnosis of placenta accreta.

In cases of confirmed placenta accreta, uterine massage, administration of oxytocin, ergonovine, and prostaglandins may be ineffective at controlling bleeding. If suspected, management often involves exploratory laparotomy and surgical control of hemorrhage, which may necessitate a hysterectomy. Reports exist of successful cases where the uterus was preserved, and retained placental fragments were treated with methotrexate.

Uterine Rupture

Uterine rupture can occur in 0.5-1% of women with a prior uterine scar and in approximately 1 in 15,000 to 20,000 cases in an unscarred uterus. Rupture may result from trauma (e.g., complicated labor, operative vaginal delivery) or occur spontaneously along a scar. While typically happening during labor, hemorrhage from uterine rupture can manifest in the postpartum period.

Risk factors for uterine rupture include prior uterine surgeries, abnormal fetal presentations, cephalopelvic disproportion (disproportion between the fetal head and maternal pelvis), and multiparity. The classic signs include sudden abdominal pain and the sensation of "tearing." Treatment involves an emergency laparotomy, repair of the rupture, and possible hysterectomy if repair is not feasible.

Uterine Inversion

Uterine inversion is a rare condition (1 in 2,000-2,500 deliveries) where the uterine fundus inverts and protrudes through the cervix during or after the third stage of labor. Risk factors include placental attachment at the fundus, uterine atony, and excessive traction on the umbilical cord. Diagnosis involves visualizing or palpating the inverted fundus and associated placenta.

Immediate manual removal of the placenta and repositioning of the uterus is necessary. Vasovagal reflexes can be triggered by inversion, requiring stabilization of the patient, anesthesia administration, and uterine repositioning, facilitated by tocolytics or nitroglycerin if needed. Surgical correction via laparotomy may be required in severe cases.

Surgical Management of Postpartum Hemorrhage

If conservative measures during vaginal delivery are ineffective at stopping bleeding, surgical intervention is necessary. Laparotomy is performed, and the presence of hemoperitoneum is evaluated to rule out uterine rupture. If the patient is stable and no coagulopathy is present, bilateral ligation of the uterine arteries is performed. Hypogastric or internal iliac artery ligation is the second step if necessary.

If uterine atony is the cause of bleeding, hemostatic sutures (circular stitches) are placed on the uterine body. If these measures are ineffective, postpartum hysterectomy is performed.

If conservative blood loss control is sufficient, temporary uterine tamponade and uterine artery embolization under angiographic guidance may be performed. In cases of DIC syndrome, simultaneous hysterectomy and blood volume restoration with coagulation factor replacement are indicated.

1.3. Postpartum Contraception

Most women remain sexually active during the postpartum period. Surveys show that two-thirds of Russian women resume sexual activity within one month postpartum, with nearly all (98%) doing so within four to six months. The concern is significant, as 20-40% of Russian women do not use any protection against unwanted pregnancy during this period [1].

Menstrual function resumes by the third month postpartum in 80% of non-breastfeeding and 20% of breastfeeding women. Studies indicate that the first postpartum menstruation in non-breastfeeding women occurs on average 2.57 ± 2.3 months after birth, while in breastfeeding women, it occurs at around 5.17 ± 4.3 months. Ovulation recurs within the first few months postpartum in 60-65% of women, making reliable contraception crucial to prevent another pregnancy [2, 3]. Most breastfeeding women (80%) experience amenorrhea throughout the lactation period. The first postpartum menstruation is often anovulatory but can sometimes be ovulatory, leading to pregnancy before the first menstruation [4].

Preventing unintended pregnancy in the initial months postpartum is essential for preserving reproductive health, as termination during this period can cause severe psychological and hormonal stress, leading to both functional and organic disorders in the reproductive system [5]. Studies show that pregnancy occurring within two years postpartum doubles the risk of complications such as preeclampsia, anemia, and impaired fetal growth, as well as complications during and after childbirth [7].

Women are typically advised to refrain from sexual activity for six weeks postpartum until their first check-up. However, some may resume sooner, making discussions about contraception before hospital discharge essential.

For those preferring hormonal contraception while breastfeeding, progestin-only contraceptives are recommended: mini-pills, Norplant, or Depo-Provera. These do not affect breast milk quality or volume and can even enhance it. Progestin-only pills can be started 2-3 weeks postpartum, and Depo-Provera at six weeks postpartum [13, 15].

Combined estrogen-progestin contraceptives are not recommended for breastfeeding women as they may affect milk production and quality. For non-breastfeeding mothers without contraindications, any method of contraception can be used starting from the resumption of sexual activity.

Barrier Methods Barrier methods include mechanical and chemical types, with some having combined effects. Male and female condoms, diaphragms, and cervical caps are examples. Although barrier methods have lower effectiveness than IUDs or hormonal contraceptives, they are safe postpartum and can prevent sexually transmitted infections (STIs). Allergic reactions to latex or spermicides can occur, presenting as itching, redness, or irritation. Rare cases of toxic shock syndrome have been associated with diaphragms or caps [11].

Contraceptive Spermicides Spermicides inactivate sperm within the vagina, preventing entry into the uterus. Most modern spermicides contain potent active ingredients that destroy sperm membranes, reducing motility and fertilization capability. Their advantages include convenience, minimal side effects, and use in conjunction with hormonal or IUD methods. However, they have a lower effectiveness rate (around 94% with perfect use) and may cause local irritation.

Hormonal Contraception Progestin-only contraceptives are suitable for breastfeeding women as they do not affect lactation. These include progestin-only pills, injections, and subdermal implants. Injections provide long-term protection but may have side effects that cannot be immediately reversed. Subdermal implants can be removed at any time, offering flexible contraception for six months to five years, depending on the type. Combined oral contraceptives (COCs), although highly effective (nearly 100% when used correctly), are not advised during breastfeeding.

Surgical Sterilization Postpartum sterilization can be performed while the mother is still hospitalized, with cesarean sections providing an optimal opportunity. Sterilization decisions should be made prenatally and legally confirmed with informed consent.

Chapter II: Indications and Contraindications for Intrauterine Device (IUD) Insertion in the Postpartum Period

2.1. Indications for and Potential Complications of Postpartum IUD Insertion

The use of intrauterine devices (IUDs) can lead to both complications and side effects. In certain cases, inserting an IUD may result in uterine perforation, occurring in approximately 0.2% of cases. Additionally, the use of IUDs may be associated with the development of pelvic inflammatory diseases in 16-18% of cases. Furthermore, women using an IUD often report changes during menstruation, including dysmenorrhea and menorrhagia, especially during the

initial months of use (reported in 27-40% of cases). After 3-4 years of use, some women may develop endometrial hyperplastic processes, resulting in an increase in menstrual flow. In rare cases (1-2%), spontaneous expulsion of the IUD may occur.

Complications Associated with IUDs

The adverse effects of IUDs include:

- Pain in the lower abdomen;
- Genital tract infections;
- Uterine bleeding.

These symptoms are not universally observed but are recognized as complications of contraception.

Lower Abdominal Pain

Lower abdominal pain is reported by 5-9% of women. Severe pain accompanied by bloody discharge may indicate that the IUD has shifted. To prevent such complications, nonsteroidal anti-inflammatory drugs (NSAIDs) are often prescribed after the insertion of an IUD. Additionally, if an IUD inappropriate for the size and shape of the uterus is inserted, pain can occur, necessitating replacement.

Sudden, severe pain may indicate uterine perforation by the IUD. The incidence rate of such perforation is about 0.5%. Often, uterine perforations are only detected when removing the IUD becomes difficult. If full perforation is confirmed, immediate laparoscopic or laparotomic intervention is required.

Genital Tract Infections

Infectious and inflammatory complications, such as endometritis, occur in 0.5 to 4% of cases. Severe manifestations include fever, intense pain, and purulent discharge. Without timely treatment, uterine tissue may deteriorate. Prophylactic use of broad-spectrum antibiotics after IUD insertion is recommended to mitigate the risk of infection.

Uterine Bleeding

Uterine bleeding is observed in 24% of cases. It may present as increased menstrual flow (menorrhagia) or, less frequently, as intermenstrual bleeding (metrorrhagia). Such bleeding is often accompanied by iron deficiency anemia, fatigue, pallor, shortness of breath, brittle hair and nails, and dystrophic changes in internal organs. To prevent these issues, oral contraceptives should be used two

months prior to IUD insertion. If menorrhagia leads to anemia, IUD removal is warranted.

Pregnancy Occurrence

While IUDs reduce the likelihood of pregnancy, ectopic pregnancies can still occur. If pregnancy happens with an IUD in place, there are three possible courses:

1. Induced abortion due to infection risks and the possibility of miscarriage.
2. Removal of the IUD, which may lead to spontaneous abortion.
3. Continuation of the pregnancy, in which case the IUD may be expelled with the placenta during childbirth, though complications may arise.

Approximately 90% of women can regain fertility after IUD removal, provided no other contraceptive methods are used.

Indications for IUD Use

IUDs are advised when other contraceptive methods are ineffective. Short-term use is not beneficial; women should plan to avoid pregnancy for at least one year or longer. Importantly, IUDs do not protect against sexually transmitted infections and may increase the risk of infection.

Appropriate Conditions for IUD Insertion

- Frequent sexual activity without a desire for pregnancy;
- Women who cannot or do not want to use hormonal contraceptives;
- Women with contraindications for pregnancy due to extragenital diseases;
- Couples with a known genetic disorder.

Contraindications for IUD Use

Absolute Contraindications:

- Pregnancy;
- Active pelvic inflammatory diseases such as endometritis, adnexitis, colpitis;
- Uterine or cervical tumors;
- High risk of ectopic pregnancy.

Relative Contraindications:

- Uterine bleeding or hypermenorrhea;
- Endometrial hyperplasia;
- Dysmenorrhea;
- Congenital or acquired uterine deformations;
- Blood disorders;

- Submucous myoma;
- Severe internal organ inflammation;
- Allergy to IUD components (e.g., copper or levonorgestrel).

Insertion and selection of an IUD must be carried out by a qualified gynecologist.

2.2. Types of Intrauterine Devices (IUDs), Advantages, Disadvantages, and Characteristics

IUDs are among the most widely used contraceptive methods. In our country, nearly 60% of women of reproductive age prefer this method, while globally, approximately 85 million women use IUDs. IUDs are made from various materials, and three main types are recognized worldwide:

1. **Inert IUDs** (made of plastic);
2. **Copper-containing IUDs**;
3. **Hormone-releasing IUDs** (usually containing progestin).

Copper-containing IUDs are favored and are available for insertion in all specialized medical institutions in the country. The main types include:

- **Copper T380A**, the most common type, sterilized and with a copper area of 380 mm². It is distinguished by its high efficacy and long duration (up to 10 years).
- **Copper T200**, with a copper area of 200 mm², effective for up to 4 years.
- **Multiload 375 and 250**, sterilized with copper areas of 375 mm² and 250 mm², respectively, effective for up to 5 years.

Research shows no significant differences in contraceptive efficacy among IUD types. The primary factor for success is the skill of the healthcare professional inserting the IUD.

Mechanism of Action for Copper IUDs

These IUDs induce aseptic inflammation in the endometrium, altering its chemical and enzymatic environment and preventing sperm from passing through the uterine tubes. If fertilization occurs, the IUD acts as a foreign object, enhancing tubal peristalsis and causing the fertilized egg to be expelled.

Regulations for IUD Use

IUDs should only be used when pregnancy is definitively excluded. They are most effectively inserted:

- During the first 7 days of menstruation;
- 48 hours or 6 weeks post-delivery;

- Immediately after an uncomplicated abortion or 7 days after if no pelvic infection symptoms are present.

Appropriate Candidates for IUD Use:

- Women with at least one childbirth in their history who desire long-term contraception;
- Nursing mothers needing contraception;
- Women post-abortion without signs of pelvic infection;
- Women with low risk for sexually transmitted infections;
- Women unable to use hormonal contraceptives.

2.3. Results of Recent Studies on Postpartum Contraception

The issue of postpartum family planning and contraception holds significant medical and social importance. Studies indicate that when the interval between childbirth and subsequent pregnancy is over two years, maternal mortality decreases by 32%, and child mortality drops by 10%. Postpartum family planning can reduce the frequency of medical abortions by up to 90%.

Conceiving within the first year postpartum significantly increases the risk of pregnancy-related complications, including spontaneous abortion, preterm labor, placental insufficiency, and fetal growth restriction syndrome. The risk of mortality for children under five is highest when the interval between births is less than 12 months, decreasing by 13% with a 24-month interval and by 25% with a 36-month gap.

According to demographic analyses conducted in 27 countries, 95% of postpartum women (0-12 months) wish to avoid pregnancy for at least 24 months, yet 70% of these women do not use any contraception method. For women who have undergone a cesarean section, only 48% plan their next birth, and 69% of patients wish to adhere to the optimal three-year interval between cesarean deliveries.

Ovulation and the onset of pregnancy can occur before the resumption of the menstrual cycle, a fact often unknown to postpartum women. Effective and safe contraception methods not only help prevent unplanned pregnancies and associated terminations but also support the full recovery of the mother's body and necessary preparation for subsequent conception.

Given these factors, postpartum contraception is critical for maintaining overall and reproductive health. However, in some countries, the use of postpartum contraception methods is limited, and approximately one-quarter of women visit medical facilities to terminate pregnancy within a year after childbirth. In comparison, 77.9-89.9% of women in the U.S. utilize effective postpartum contraception methods.

The main objectives of postpartum family planning include optimal spacing between pregnancies, reducing maternal health risks, decreasing perinatal and child morbidity and mortality rates, and limiting the number of medical abortions. This underscores the necessity of choosing a contraceptive method for couples within the first month after childbirth.

Intrauterine contraception is one of the most common and effective methods for preventing unintended pregnancies. The contraceptive effect of intrauterine devices is achieved through the regular release of hormonal components, preventing implantation of the fertilized egg in the endometrium or through a spermicidal effect. IUDs with spermicidal properties may contain elements such as silver, copper, or gold, which adversely affect sperm cells. Hormonal IUDs typically contain levonorgestrel.

The question of selecting the most effective method of postpartum contraception is highly relevant for women. Gynecological specialists often recommend intrauterine contraception to postpartum women. The main advantages and disadvantages of using an IUD postpartum are discussed in detail below.

Before inserting an IUD postpartum, a medical specialist must evaluate whether indications for using this contraceptive method are present. The main indications include:

- Increased fertility in the woman.
- Diagnosed extragenital diseases identified postpartum, which contraindicate subsequent pregnancy.
- The desire to prevent unplanned pregnancies for an extended period.

The optimal time for postpartum IUD insertion is determined by the treating gynecologist. Some criteria include:

- Following normal delivery: If delivery was uncomplicated, an IUD may be inserted in the maternity ward or 6-8 weeks after childbirth.
- After complicated deliveries: If complications arose during delivery, IUD insertion should be delayed by at least 2-3 months to allow the reproductive system to recover.

Many new mothers are concerned about the potential harm of IUDs and their effects on the body. The contraceptive effect depends directly on the type of IUD. If the IUD contains levonorgestrel, it disrupts the implantation of the fertilized egg in the endometrium by activating the hypothalamic-pituitary system, enhancing the synthesis of estrogens and luteinizing hormone. The spermicidal action of IUDs results from components that damage male reproductive cells.

2.4. Characteristics of IUD Use Postpartum

There are specific considerations for using IUDs postpartum. The optimal time for insertion is determined by a gynecologist. Additionally, women should heed the following recommendations prior to IUD insertion:

- Refrain from using vaginal suppositories, sprays, and lubricants for 7 days before insertion.
- Avoid intimacy 3 days before insertion.
- Cease using any cosmetic hygiene products 2 days before insertion.

During Lactation: Under normal conditions, IUDs are inserted between days 5-7 of the menstrual cycle. During breastfeeding, menstrual function may be partially or entirely suppressed, so IUDs can be inserted on any day, with all nuances discussed in advance with the gynecologist.

Post-Cesarean Section: An IUD is inserted at least six months after the surgery. This method ensures reliable protection against unplanned pregnancies, as pregnancy is contraindicated for two years after a cesarean section. Before IUD insertion, thorough examinations are conducted, and alternative protection methods are chosen if contraindications are found.

2.5. Complications and Removal of IUDs

If the technique of insertion is not followed, women may experience complications such as:

- Partial expulsion of the IUD from the uterine cavity;
- Pain in the lower abdomen;
- Spotting from the genital tract;
- Pelvic inflammation;
- Uterine damage and deformation.

The removal of the IUD is performed by a gynecologist using special tools. After removal, a pelvic ultrasound and laboratory analysis of vaginal smears are recommended to identify pathogenic microflora. Typically, the procedure does not cause discomfort or pain for the patient.

Postpartum insertion of an IUD, regardless of delivery method, significantly reduces the risk of subsequent pregnancies and eliminates the need for women to visit healthcare facilities for contraception-related issues while fully engaged in child-rearing. However, research indicates that the risk of expulsion is higher when an IUD is inserted within 48 hours postpartum compared to standard administration at later periods.

2.6. Guidelines for Postpartum Contraception

The World Health Organization's 2015 document, "Medical Eligibility Criteria for Contraceptive Use," provides standardized guidelines based on evidence for the safety of various contraceptive methods. For postpartum use, LNG-IUD insertion is advised to be delayed until uterine involution has occurred, typically not earlier than six weeks postpartum.

2.7. Postpartum Contraception for Adolescents and Young Women

Reliable postpartum contraception is particularly critical for young women. The risk of unplanned pregnancies is nearly twice as high among women under 21 using short-term contraception methods compared to older women. The American College of Obstetricians and Gynecologists (ACOG) first addressed the issue of IUD use in adolescents in 2007, acknowledging its feasibility and effectiveness.

2.8. Complications and Their Management

Despite the known benefits of IUDs over other contraceptive methods, their use is not without risks. Common complications include pain syndrome, menstrual irregularities, expulsion, pelvic inflammatory diseases, and, in rare cases, uterine perforation. Comprehensive preventive measures should be implemented to minimize these risks.

Complications of IUD Use and Their Management

2.8. IUD Complications and Ways to Mitigate Them

The advantages of IUDs over other contraceptive methods are widely acknowledged. However, numerous complications associated with IUDs exist, including pelvic inflammatory diseases, uterine bleeding, pain, timing of IUD expulsion, and perforation during use. The most frequently observed complications include pain syndrome (14%), menstrual cycle disturbances (1.5-20%), expulsions (0.7-30%), and pelvic inflammatory diseases (0.43-9%).

According to various sources, long-term follow-up studies have documented complications such as pregnancy (0.54%), bleeding (1.33%), total (1.94%) or partial (1.8%) expulsion, which necessitate IUD removal. Most complications during IUD insertion occur when patient histories indicating dysmenorrhea or existing pelvic diseases are overlooked.

Classification of IUD Complications:

1. Complications occurring during IUD insertion.
2. Complications observed during the use of IUDs.
3. Complications following IUD removal.

Measures to Prevent IUD Complications:

- Thorough examination of women to rule out contraindications before IUD use.
- Individualized IUD selection based on the woman's physiological characteristics and family planning needs.
- Correct timing and adherence to proper IUD insertion techniques.
- Use of antibiotics and prostaglandin synthesis inhibitors during the first few days and menstrual cycles after IUD insertion for prophylaxis.
- Timely and comprehensive treatment of any IUD complications.

Common complications include pain syndrome, expulsion, and pelvic inflammatory diseases. Detailed observations are as follows:

Uterine Perforation: Uterine perforation is one of the more severe complications associated with IUD insertion, occurring in 0.04-1.2% of cases. This complication typically results from improper insertion techniques or when contraindications are ignored. The incidence of perforations depends on the practitioner's skill level, the insertion technique, anatomical characteristics of the reproductive organs, and the timing of insertion. Factors contributing to uterine wall perforation include weakened uterine walls after multiple births or abortions and abnormal uterine positioning.

Improper assessment of uterine length and depth, or excessive insertion of the guide rod, can cause cervical injury. If the IUD is incorrectly positioned and its horizontal arms are placed vertically, the risk of wall penetration increases. Perforation can be partial or complete. If perforation is suspected, immediate hysteroscopy is recommended. Diagnosis is based on symptoms such as pain during IUD insertion, abdominal bleeding, and signs of peritoneal irritation, though these are not always present.

Diagnosis and Treatment of Uterine Perforation: If an IUD is missing from the vagina or its string cannot be located, ultrasound, X-ray, hysteroscopy, or laparoscopy should be performed urgently. If the IUD is lodged in the uterine wall, hysteroscopy is used for removal. If it has moved into the abdominal cavity, laparoscopy or laparotomy is required. In cases where these procedures are not possible, imaging studies such as ultrasound and X-ray are advised. If uterine perforation is confirmed, reparative surgery or hysterectomy may be necessary.

Expulsion and Pain Syndrome: Pain usually occurs within the first 1-3 days following IUD insertion, attributed to increased uterine tone. Mild pain can be managed with aspirin or prostaglandin synthesis inhibitors. If pain arises immediately after insertion, it may indicate improper placement or an oversized IUD, necessitating its removal and replacement with a smaller device.

Expulsion Rates: Expulsion often occurs in young women, as increased uterine contractility is more common in this age group. The rate of expulsion varies

depending on the IUD type and size, with copper-containing IUDs having expulsion rates of 6-16% and levonorgestrel IUDs such as "Mirena" reporting rates of 2.5-6.5%. The risk of expulsion decreases with age and increased numbers of childbirths or abortions.

Expulsions are most common within the first days to 3 months after insertion. Pain during menstruation can indicate expulsion, which may require analgesics or antispasmodics. If pain is persistent and severe, it may suggest that the IUD is not compatible with the uterine cavity or a more serious issue, such as cervical perforation. Diagnostic ultrasound and hysteroscopy provide reliable information for confirming IUD positioning.

Pelvic Inflammatory Diseases (PIDs): Inflammatory diseases are among the most serious IUD-related complications, occurring in 0.43-4.0% of cases. Copper-containing IUDs are associated with endo- and exocervicitis, endometritis, pelvic peritonitis, or abscess formation in 3.8-14.3% of cases. It is noteworthy that most inflammatory conditions are preceded by pre-existing chronic diseases that have transitioned into an active phase.

Treatment of IUD-Related Inflammatory Conditions: If inflammation occurs more than 20 days post-insertion, it is considered an IUD complication; if after three or more months, it is classified as a new condition. The causes of such conditions include sexually transmitted infections (STIs) or pre-existing chronic diseases exacerbated by IUD use. PID is the second leading reason for premature IUD removal after bleeding.

Recommendations: Prompt removal of the IUD and anti-inflammatory treatment are necessary for managing pelvic inflammation. IUD use may be resumed 6-12 months later. Removal and antibacterial therapy should be individualized.

Uterine Bleeding: Uterine bleeding is one of the most alarming complications, occurring in 5-15% of cases. Bleeding during menstruation may vary from prolonged, heavy bleeding to intermittent discharge between cycles. When blood loss exceeds 80 ml, it is diagnosed as menorrhagia, potentially leading to iron-deficiency anemia. Menorrhagia during IUD use may result from mechanical damage to the endometrium and increased local prostaglandin production.

Uterine Bleeding Management: The degree of endometrial damage correlates with the physical and chemical properties of the IUD. Copper-containing IUDs with larger surface areas tend to cause more menorrhagia compared to smaller or medicated IUDs. If severe bleeding persists for more than three months, causing anemia, IUD removal is indicated. Hemoglobin and hematocrit levels are key metrics for assessing the need for removal.

Pregnancy Occurrence with IUD Use: Despite the high efficacy of IUDs, pregnancy can still occur in 0.5-2% of cases, often due to undetected complete or partial expulsion. If pregnancy occurs, immediate IUD removal and pregnancy termination are recommended. In cases where a pregnancy is maintained, there is a 50% chance of spontaneous miscarriage, a fourfold increase in preterm labor, intrauterine infection, and septic abortion.

If a woman decides to continue with the pregnancy, she must be informed of potential complications. Typically, the IUD is expelled with the placenta postpartum, but in 20% of cases, it may remain in the uterus and require manual removal.

Ectopic Pregnancy: Ectopic pregnancies are more common with IUD use than with other contraception methods, occurring in 1.5-9.25% of cases. The reason for this is that while uterine implantation rates drop to 99.5%, tubal implantation rates increase to 95% due to altered tubal peristalsis, affecting the movement of fertilized eggs. Regular check-ups post-IUD insertion help reduce these risks.

Chronic Endometritis and Salpingo-oophoritis: Chronic endometritis and pelvic inflammatory diseases are significant complications associated with IUD use, potentially leading to infertility and ectopic pregnancies.

Indications for IUD Removal:

- The woman's request.
- Expiration of IUD use.
- Onset of menopause.
- Diagnosis of uterine or cervical cancer.
- Partial IUD expulsion or uterine perforation.
- Pregnancy occurrence.
- Persistent pain.
- Severe bleeding posing a risk to life.
- Inflammatory diseases of pelvic organs.
- Cervical erosion.

Conclusion Based on Literature Review: It can be concluded from the literature review that while IUDs are effective, convenient, and widely used, they are associated with various complications. Adequate preventive measures for these complications are not yet fully developed.

Study Observations: Our observations included 25 patients (main group) treated for IUD complications at the 3rd Maternity Complex over the past 10 years and 125 women monitored as outpatients (control group) during the same period. Detailed analysis of patient histories revealed factors contributing to IUD complications.

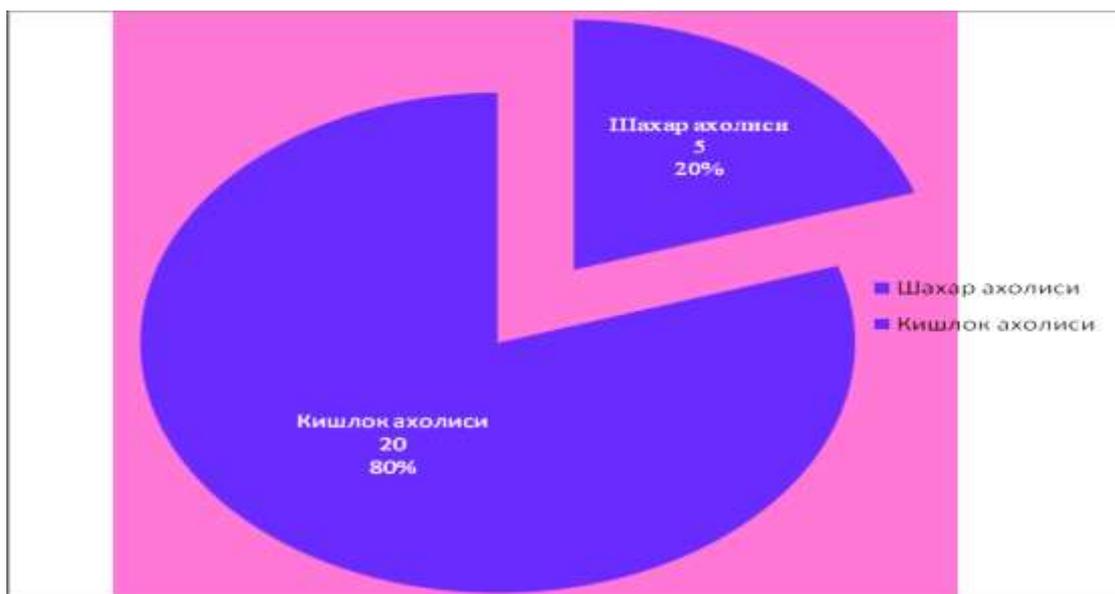


Diagram No. 1: Distribution of IUD Complications by Residence

From this diagram (Diagram No.), it is evident that complications are more frequently encountered among the rural population. The reasons for this include delayed medical consultations by women and the inadequacies in the primary healthcare network.

Chapter III. Indicators of Potential Complications of Intrauterine Devices (IUDs) in Women Postpartum and Their Prevention Using Modern Methods

3.1. Natural Methods of Contraception

Currently, IUDs are ranked 2nd worldwide in preventing unintended pregnancies, with nearly 150 million women using this method of contraception [D. Arcenges and others]. This widespread use results in a significant rate of complications associated with this contraceptive method. Our analysis indicated that IUDs are the most commonly used form of contraception in Uzbekistan, differing from the global statistics.

Literature suggests that IUD complications are less common in multiparous women compared to those experiencing childbirth for the first time [Prilepskaya V.N., 2000]. However, our research revealed the opposite: complications were more frequent in multiparous women (63%) than in primiparous women (37%).

According to Olimova O.T., IUD complications predominantly occur in women aged 20-35. The majority of our observed patients also fell within this age range (44%), aligning with the aforementioned data.

An analysis based on social status showed that most complications occurred in housewives (68%). This is related to housewives not seeking timely medical

assistance from clinics and primary healthcare providers, leading to the delayed detection of complications.

Literature states that complications related to IUDs often manifest as severe lower abdominal pain, discomfort in the pelvic area, heavy vaginal discharge, and secondary infertility [Prilepskaya V.N., 2000]. Our research yielded similar results.

According to Kurbanova M.Kh., complications occurring during IUD insertion are often observed in patients with a history of dysmenorrhea and inflammatory diseases of the pelvic organs. A review of patient histories in the retrospective group revealed cases of endometritis, metroendometritis, and endocervicitis, contributing to IUD-related complications. The consistency between literature data and our analysis supports these findings.

Fadeeva E.G. reported that dysmenorrhea occurred in 20%, PID (pelvic inflammatory disease) in 9%, and bleeding in 1.33% of cases. Our observations indicated the following: dysmenorrhea in 13%, PID in 26%, bleeding in 8.5%, ectopic pregnancy in 0.8%, and cervical changes in 40%. Comparing our findings with literature data showed discrepancies in the rates of dysmenorrhea and PID, with PID being more prevalent in our analysis.

Hatcher R.A. and Grimes D.D. noted that menorrhagia is observed in the initial 2-3 months following IUD insertion and gradually decreases as the body adapts. Our observations supported this, with menorrhagia intensifying during the first 3 months and then declining.

IUDs can cause various pathologies such as endo- and exocervicitis and cervical erosion [Aveculla-Palau, Thiery M]. Analysis of patients in the main and control groups showed the following results: endocervicitis in 57% (13 patients), and cervical erosion in 43% (10 patients).

According to Prilepsky V.N., atypical positioning of the IUD is observed when perforation occurs, with the bladder being the most frequent site. In our control group presenting with complications, the highest incidence was in the abdominal cavity at 58% (7 cases), the bladder at 25% (3 cases), and the ovary at 17% (2 cases). This contrasts with literature findings, which indicate a higher occurrence in the abdominal cavity.

Zhuravlev Y.V. and Suprun L.Y. and others highlighted that the rate of complications is related to the type of contraceptive. Earlier types of IUDs were associated with higher complication rates compared to modern ones. Our research confirmed this, with COPPER-T used by 52% (13 patients), Multiload by 28% (7 patients), and Lippes loop by 20% (5 patients), leading to complications.

Prilepskaya V.N. and Rogovskaya S.A. emphasized that women should undergo a thorough gynecological evaluation before using an IUD to identify any contraindications. This reduces the risk of complications. In our study, out of 25 patients who experienced complications, only 7 (28%) had undergone ultrasonography, 5 (80%) had basic examinations, and 3 (12%) had vaginal cleanliness assessed. In the control group, all women were examined, and IUD use was denied in cases of contraindications.

IUD complications tend to appear with prolonged use, typically after 6-7 years [Tatum H.J., Shmidt F., Jain A.K.]. This was consistent with our observations, where most complications (10 patients) were observed with IUD use for 5 or more years.

The World Health Organization (WHO) recommends inserting IUDs at any point during the menstrual cycle when pregnancy can be confidently excluded, preferably on days 4-8 to minimize endometrial damage and facilitate easier insertion, as the cervix is slightly open.

The insertion of an IUD after artificial or spontaneous abortion or within 4 days of these events is also possible, provided there are no signs of inflammation or bleeding, as these are contraindications. If the IUD is not inserted within this period, the procedure should be postponed until the next menstrual cycle. Additionally, IUDs can be inserted within 48 hours after delivery. However, this is associated with a higher risk of complications, such as expulsion or perforation. If insertion is not done during this period, it can be performed 4-6 weeks postpartum [Prilepskaya V.N.].

In our observations, in the main group, 8 patients (32%) had an IUD inserted following surgical procedures, 7 patients (28%) within 40 days postpartum, 6 patients (24%) on days 4-5 of menstruation, and the fewest, 4 patients (16%), during lactation, which led to various complications. In the control group, IUDs were mainly inserted during days 4-5 of menstruation (16 patients), with none inserted postpartum or after surgery, resulting in almost no complications. This aligns with literature data and our study results.

According to Hatcher R.A., Koval D., and Khomasuridze A., the criteria for preventing IUD complications include:

- Thorough examination of women to identify contraindications for IUD use.
- Selection of an IUD tailored to each woman's individual physiological characteristics, considering planned childbirth timing.
- Proper IUD insertion technique and adherence to optimal timing.
- Use of antibiotics and prostaglandin synthesis inhibitors during the initial days post-insertion and over the first three menstrual cycles as a preventive measure.

- Timely and comprehensive treatment of IUD complications.

Based on these criteria, we developed an algorithm for monitoring and preventing complications, resulting in a significant reduction in complications. The decrease in complications aligns with literature data.

In conclusion, comparing literature data and our findings shows a high degree of consistency:

- IUDs rank first among contraceptive methods in Uzbekistan.
- Complications are less common in primiparous women (37%) compared to multiparous women (63%).
- Most patients experiencing complications were aged 20-35 (44%).
- Patients often reported severe lower abdominal pain, pelvic discomfort, and heavy vaginal discharge.
- Women with a history of endometritis, metroendometritis, and endocervicitis were more prone to IUD-related complications.
- Menorrhagia was more pronounced in the first three months, then decreased.
- IUDs were found to cause cervical pathologies such as endo- and exocervicitis and erosion.
- The main group showed a higher incidence of abdominal cavity complications (58%), bladder (25%), and ovaries (17%).
- Complications were most frequent with COPPER-T (52%), followed by Multiload (28%) and Lippes loop (20%).
- Prolonged IUD use (5 or more years) correlated with higher complication rates.

Contraceptives are devices or methods used to prevent pregnancy and are an integral part of family planning systems aimed at regulating birth rates and maintaining women's health. First, the use of modern contraceptive methods reduces the frequency of abortions, a major cause of gynecological pathology, miscarriages, maternal, and perinatal mortality.

Secondly, contraceptives help regulate pregnancy timing, spacing between children, number of children, and other reproductive health factors. Thirdly, some contraceptives offer protective properties against malignancies, pelvic inflammatory diseases, and postmenopausal osteoporosis, aiding in the management of infertility, ovarian apoplexy, and menstrual disorders.

The effectiveness of any contraceptive method is measured by the Pearl Index, indicating the number of pregnancies occurring per 100 women using a given method over one year.

Modern contraceptive methods are divided into:

- Intrauterine devices (IUDs)
- Hormonal methods
- Barrier methods
- Natural methods
- Surgical sterilization

For breastfeeding women, the choice of contraception depends on the feeding schedule and the time elapsed postpartum. Prolonged breastfeeding-associated amenorrhea plays a significant role in natural birth control. Almost half of breastfeeding women (48%) resume menstruation in the second year of breastfeeding, 37% in the second half of the first year, and only 7% within 6 months [8].

However, modern studies show considerable variability in the postpartum amenorrhea period, often referred to as the "lactational infertility" phase. The resumption of ovarian activity depends on the time elapsed postpartum [6]. Factors that primarily determine the duration of amenorrhea and infertility include breastfeeding duration, feeding frequency and consistency, the introduction of complementary foods, maternal diet, and geographic, social, and cultural characteristics.

Modern specialists believe that breastfeeding as a contraceptive method can delay pregnancy for up to 6 months postpartum [9]. Immediate postpartum breastfeeding is considered an effective natural contraception method (lactational amenorrhea method, LAM). LAM's efficacy reaches a maximum (98%) in cases of "ecological breastfeeding," which involves feeding on demand (even at night), up to several times per hour, averaging 12-20 times a day, including 2-4 times at night. Breaks between feedings should not exceed 4 hours during the day and 6 hours at night. In this scenario, breast contact, not milk intake, is essential. If the share of supplementary foods remains below 15%, LAM's contraceptive effectiveness is maintained at a satisfactory level.

Infrequent feeding, early introduction of supplementary feeding typical in developed countries, and resumption of sexual activity after 6 months postpartum decrease LAM's effectiveness. Hence, this group of women should select a contraceptive method by 6 weeks postpartum at the latest [2, 3].

In the postpartum period, couples can also use other natural family planning methods, such as recognizing cervical mucus characteristics during peri-ovulatory days and abstaining during these periods, which may be effective when combined with LAM. However, identifying ovulation during this period is challenging. The timing of menstruation resumption is unpredictable postpartum, with the first cycle often being irregular and the estrogen level's saturation making it difficult for women to interpret cervical mucus properties accurately. Therefore, using such

methods in breastfeeding women is highly problematic and generally less effective [4].

Women who do not breastfeed or have decided not to breastfeed can use any contraceptive method without medical contraindications. Non-breastfeeding women should start using contraceptive methods once they resume sexual activity.

There is a misconception that it is impossible to conceive immediately after childbirth. While this is often true, a minority of women resume fertility nearly immediately postpartum. Additionally, breastfeeding is not always a guaranteed exclusion factor for ovulation. Hence, the question of choosing contraceptives arises immediately.

Among many contraceptive methods, IUDs are particularly appealing to young women. However, like any contraceptive method, IUDs have both advantages and disadvantages, making consultation with a specialist essential when choosing this form of protection.

3.2. Mechanism of Action of Intrauterine Devices

The contraceptive effect of an IUD works by reducing or stopping sperm motility in the uterine cavity (copper enhances the spermicidal effect) and increasing the activity of macrophages that engulf sperm entering the uterine cavity. When using IUDs containing levonorgestrel, the progestin effect thickens cervical mucus, hindering sperm passage into the uterus.

If fertilization occurs, the IUD exerts its abortive effect in the following ways:

- Enhanced peristalsis of the fallopian tubes, leading the egg into the uterine cavity before it is prepared for implantation.
- Development of aseptic inflammation in the endometrium as a reaction to a foreign body, causing enzymatic degradation that prevents implantation (copper intensifies this effect).
- Increased uterine contractility due to the synthesis of prostaglandins.
- Endometrial atrophy (in the case of hormone-releasing IUDs), making implantation impossible.

The hormone contained in an IUD provides local effects on the endometrium through continuous progestin release, inhibiting proliferative processes and causing atrophy of the uterine lining, resulting in reduced menstrual bleeding or amenorrhea. Levonorgestrel maintains ovulation without significant systemic effects.

The contraceptive effectiveness of IUDs ranges from 92-98%; Pearl indices vary from 0.2-0.5 for hormonal IUDs to 1-2 for copper-containing IUDs.

An IUD can be inserted on any day of the menstrual cycle if pregnancy is ruled out, though it is optimal between days 4-8 of the cycle. IUDs can be inserted after artificial termination of pregnancy, 2-3 months postpartum, or after a cesarean section within 5-6 months. Before insertion, a comprehensive gynecological examination should be conducted, including swabs from the vagina, cervical canal, and urethra to identify microflora and assess vaginal cleanliness. IUDs should only be inserted when cleanliness levels are rated I-II. Asepsis and antisepsis must be carefully maintained during the procedure.

After IUD insertion, women should avoid physical exertion, hot baths, laxatives, and uterotonic drugs for 7-10 days and refrain from sexual activity. Women should also be informed of potential complications requiring urgent medical attention and the signs indicating such issues. A follow-up visit within 7-10 days post-insertion is recommended, followed by another check-up after three months.

Women using an IUD should visit their gynecologist twice a year for check-ups, including microscopic examination of vaginal, cervical canal, and urethral swabs.

Complications

IUD insertion can lead to uterine perforation (1 in 5000 insertions). Perforation manifests as sharp lower abdominal pain. Ultrasound and hysteroscopy are used to identify such complications. Partial perforation allows for removal via traction on the IUD strings, while complete perforation may require laparoscopy or laparotomy.

Common IUD complications include pain, menometrorrhagia, and pelvic inflammatory disease (PID). Persistent pain may indicate an incompatibility between the IUD and the uterus. Cramping pain in the lower abdomen and vaginal bleeding can signal IUD expulsion. NSAIDs (e.g., indomethacin, diclofenac) can reduce expulsion frequency (2-9%).

Pain associated with fever and purulent vaginal discharge indicates an inflammatory complication (0.5-4%). These cases may require radical surgical intervention. To minimize complications, prophylactic antibiotics are recommended within the first five days post-insertion.

Uterine bleeding is one of the most frequent (1.5-24%) complications of intrauterine contraception. This can manifest as menorrhagia or, less commonly, metrorrhagia. Increased menstrual blood loss can lead to iron deficiency anemia. The use of NSAIDs within the first seven days post-insertion can improve the acceptability of this contraceptive method. Positive effects are noted when oral contraceptives (COCs) are taken two to three months before and after IUD insertion to ease the adaptation period.

Pregnancy with an IUD is rare but not impossible. Spontaneous miscarriages are more common with IUDs, occurring in 47% of cases during the first trimester and 53% in the second trimester. However, it is possible to continue the pregnancy if desired. The question of whether and when to remove the IUD during pregnancy is still debated. Some experts suggest early removal to avoid miscarriage, while others believe it is permissible to leave the IUD in place as it may not adversely affect the fetus. Typically, the IUD is removed with the placenta and membranes during the third stage of labor. Some authors recommend terminating pregnancies involving an IUD due to the increased risk of septic abortion.

IUDs significantly reduce the likelihood of pregnancy, including ectopic pregnancy. However, in cases where pregnancy occurs with an IUD, the rate of ectopic pregnancy is higher than in the general population.

Fertility often resumes immediately after IUD removal. The use of IUDs has not been associated with an increased risk of uterine or ovarian cancer.

3.3. Disadvantages of Intrauterine Devices

Intrauterine devices (IUDs) are among the most widely used contraceptive methods. Women over 30-35, those with a permanent partner, and those who do not plan to have more children often prefer them. In Russia, one-third of women use IUDs, and in East Asian countries, half of the female population does [3]. The widespread use of IUDs is due to their convenience, minimal need for ongoing monitoring, and economic benefits. Hormone-releasing IUDs are considered the most reliable today, with an efficacy rate of up to 99.8%, depending on the IUD's design (spiral-shaped IUDs tend to have higher efficacy) [4].

A significant benefit of hormone-releasing IUDs is the low dose of progestin, which acts locally rather than systemically, thus minimizing side effects commonly associated with oral contraceptives [3]. Additionally, IUDs offer long-term (3-5 years depending on the type) and reversible contraception [5]. Studies indicate that fertility is restored in 67% of women after six months and 90% after 12 months. Furthermore, IUDs are accepted as a means of contraception rather than an abortive method [4, 6]. Despite the advantages, potential complications and side effects of this method must be considered. Preventive measures have been developed to minimize the negative consequences associated with IUDs.

Before inserting an IUD, a complete general and gynecological examination should be conducted to rule out inflammatory and infectious diseases of the urinary and reproductive tracts and ensure that the patient is not pregnant [4]. An ultrasound examination of the pelvic organs is also performed to determine the position and size of the uterus (the difference between the uterus length and IUD length should not exceed 1.5 cm). IUD insertion is relatively painless and does not require anesthesia, except in rare cases where paracervical block anesthesia is performed,

mainly for women with medical conditions. Follow-up checks are done 1-3 months post-insertion, requiring no additional visits, though women should self-check for the presence of IUD strings at the end of each menstrual period [5].

The negative aspect of IUD use is structural and functional changes in the endometrium due to its presence [7]. Studies show that 4.4% of women developed fibroblastic changes in the stroma, often observed in patients using IUDs for over 10 years. Approximately 5-7% of women experienced chronic nonspecific endometritis. The incidence of these changes increased 2-3 times with prolonged IUD use (5-12 years). Endometrial hyperplasia was noted in 3.9% of cases, often mixed and asymptomatic.

A number of cytological and histological studies have determined that hyperplastic processes do not typically involve atypical changes [8, 9]. However, other studies have shown signs of dysplasia and cellular atypia in 0.09-2.7% of women using IUDs [10, 11]. Studies on mitotic activity in the endometrium showed that it did not deviate from the norm during various periods of IUD use (6 months to 12 years) [12].

In patients using IUDs for less than a year, decreased mitotic activity (MA) was observed, associated with decreased utilization of steroid hormones by target organ cells. However, this change was temporary, and MA returned to normal with continued IUD use. Based on these findings, endometrial malignancy risk appears minimal when using IUDs. Nevertheless, it is important to note that precancerous and cancerous developments can occur with increased metaphases (up to 70%) and pathological mitoses (up to 40%).

A quantitative increase in pathological mitoses was found in women who had used IUDs for seven years or more, comparable in quality to the pathological mitoses of a control group of non-IUD users (chromosomal divergence in metakinesis and C-mitosis) [12].

These studies confirm the safety of using IUDs concerning cancer risk, though the risk of malignancy increases with long-term (more than seven years) continuous use [13].

Uterine Perforation as a Complication

Uterine perforation is another significant complication of IUD use [7]. This severe consequence occurs in 0.003-0.8% of cases, equating to one case per 150-9000 insertions, according to WHO data [14]. The frequency of uterine perforation depends on several factors: the material and shape of the IUD, the individual anatomical features of each patient's uterus, adherence to insertion technique, and optimal timing for IUD placement. Perforation commonly occurs in the uterine fundus, the uterine wall, or the angle between the cervix and uterine body.

Tears in the uterine fundus and the angle between the cervix and uterine body often occur during IUD insertion, while perforation of the cervical wall is usually associated with IUD migration at any point after insertion. In rare cases, perforation may occur due to implantation of the fertilized egg, causing the IUD to be expelled from the uterine cavity as the embryo grows. This may be attributed to improper sizing of the IUD relative to uterine dimensions [15].

IUDs, while highly elastic, may compress the endometrial lining over prolonged use, disrupting blood circulation and leading to ischemia and metabolic changes, which can cause ulceration. Migration of the IUD through the uterine wall may occur without full perforation, classified as partial perforation. If an IUD is partially embedded in the myometrium, it is considered a grade 1 perforation and can be removed via the vagina [15]. If the IUD is fully embedded in the muscle layer, a grade 2 perforation is diagnosed, requiring abdominal surgery for removal [15]. Endometrial atrophy allows an IUD to penetrate the myometrium under intra-abdominal pressure. The gradual development of perforation and the limited number of nerve endings in the area may result in the condition going unnoticed for a long time [16]. Possible symptoms include persistent pelvic pain that does not respond to antispasmodic medications, dysuria, signs of peritoneal irritation, absence of IUD control strings in the vagina, or severe pain during attempts to remove the IUD [17].

Diagnostic Methods for IUD Migration

The diagnosis of IUD migration can be performed using two main methods: ultrasound imaging and plain radiography of the abdomen and pelvis [18]. Ultrasound identifies the IUD as a hyperechoic structure with acoustic shadows. These methods help determine the precise location of the IUD, uterine size and shape, and the presence of complications. In complex cases, more precise diagnostic techniques, such as magnetic resonance imaging (MRI) and computed tomography (CT), are employed.

Due to uterine perforation, an IUD may migrate into the pelvic cavity, peritoneal space, rectum, sigmoid colon, or bladder, potentially forming utero-rectal or uterine-intestinal fistulas; this represents grade 3 perforation [17, 19]. In these cases, a laparoscopic procedure performed through three small incisions is recommended for IUD removal [15, 16]. According to various modern studies, the incidence of postoperative complications ranges from 0-38%, while the efficacy of the IUD removal procedure reaches 100% [20-22].

A common complication associated with IUD migration from the uterine cavity is the development of adhesions, which can hinder visualization and pose additional challenges during removal [17, 18]. In some cases, an abscess may form due to adhesion and suppuration. In these instances, drainage of the pelvic cavity for 4-6 days and antibiotic therapy for the patient is advised [15]. IUD migration can also

lead to complications such as intestinal obstruction, internal bleeding, peritonitis, sepsis, and the formation of adhesions [18].

Infectious and Inflammatory Complications

Another drawback of IUD use is the potential development of infections and inflammatory diseases (PIDs) of the uterus and its appendages. This is primarily because IUDs do not protect against sexually transmitted infections (STIs) [7]. Secondly, the "wick" or "capillary" effect, in which infection travels to the uterus through the IUD strings located in the vagina and cervix, increases the risk of ascending infection [23, 24].

IUDs can trigger endometrial edema, increased capillary permeability, enhanced prostaglandin production, and increased myometrial tone. Bacteriological studies have shown that using IUDs disrupts the balance of normal cervical microflora.

Women using IUDs were found to have a 1.5-fold decrease in beneficial microorganisms such as lactobacilli and bifidobacteria, alongside an increase in conditionally pathogenic microflora, including staphylococci, corynebacteria, enterobacteria, fusobacteria, peptococci, and peptostreptococci. This shift in vaginal pH creates an unfavorable environment for the growth of lactobacilli [25]. The absence of the antagonistic effect of lactobacilli and bifidobacteria facilitates the growth of pathogenic and opportunistic microorganisms, promoting the spread of infection [24].

Inflammatory complications are most commonly observed within the first three months following IUD insertion. The highest incidence of PID is recorded during the first menstrual period, attributed to transient contamination of the endometrium by external genital, vaginal, and cervical microflora. The risk of pelvic inflammatory disease (PID) in the first month is 5.4-8 cases per 100 patients, decreasing to 2.5 cases per 100 women after 1-2 years [26].

The risk of developing complicated forms of PID is associated with the duration of IUD use: the longer the use, the higher the risk of abscesses, fistulas, peritonitis, and severe destructive inflammatory reactions. Patients using IUDs tend to exhibit mild or subclinical symptoms that progress gradually [23]. The main complaint is pain in the lower abdomen, with signs of peritoneal irritation more common in such patients. Women using IUDs often develop tubo-ovarian abscesses, pelvic peritonitis, retroperitoneal abscesses, sclerotic changes in the fallopian tubes, and a predominance of phlegmonous inflammatory reactions.

3.4. Risk Factors and Types of Complications Depending on the Timing of IUD Insertion in Women

Complications associated with IUD insertion during the postpartum period often occur when there is a history of menstrual cycle disorders, chronic PID (pelvic inflammatory disease) in remission, or when contraindications for IUD insertion are not considered (10).

We categorized the complications associated with IUD insertion into two groups: complications occurring during IUD insertion and complications during the presence of the IUD in the uterus.

During IUD insertion, cervical tears were observed in 1 (2.3%) woman in the third group. Minor bleeding was seen in 4 women (10.8%) in the first group, who had an IUD inserted after placental delivery. Uterine perforation was found in 1 woman (2.3%) with endometriosis of the uterus in the third group.

In women who had an IUD inserted after placental delivery, the menstrual cycle was restored on average 5.2 ± 0.8 months later. Pain during menstruation was observed in 19 women (51.4%), and an increase in the volume and duration of menstrual bleeding was noted in 22 women (59.5%), leading to anemia. The highest rate of complications after IUD insertion was seen in 13 women (35.1%) when the IUD was inserted after placental delivery, in 14 women (29.8%) when inserted within 48 hours postpartum, and in 4 women (9.1%) when inserted after 40 days. Inflammatory complications occurred in 15 women (40.5%), and unexpected pregnancy was reported in 2 women (5.4%). It is important to note that complications were most frequently observed when the IUD was inserted after placental delivery.

As pregnancy concludes, women become consciously prepared to prevent future unintended pregnancies, so inserting an IUD within 10 minutes of placental expulsion provides rapid contraceptive efficacy without affecting lactation, unlike some oral contraceptives.

When the IUD was inserted within 48 hours postpartum, the menstrual cycle resumed after an average of 6.3 ± 0.2 months. Pain was noted in 6 women (16.2%). Intermenstrual and menstrual pain occurred in 10.3-12.1% of cases. The pain syndrome was more frequently observed in young, first-time mothers, associated with hyperprostaglandinemia, which results in increased uterine contractions and ovarian hypofunction.

Mild pain occurred during the contraceptive process but subsided without treatment after a few hours: 6 women (16.2%) in the first group experienced pain, 7 women (14.9%) in the second group, and 5 women (11.4%) in the third group. Intermenstrual and menstrual pain was noted in 53.2% of cases. The pain syndrome was more frequently observed in young, first-time mothers, related to hyperprostaglandinemia, which causes increased uterine contractions and ovarian hypofunction. Inflammatory complications were observed in 21.3% of women.

If the pain is intense and persistent, it may indicate serious complications such as uterine enlargement due to the IUD not matching the uterine size or uterine perforation. Ultrasound (US) is the most accurate diagnostic method in this case. Ultrasound can clearly show whether the contraceptive device is located within the uterine cavity or elsewhere.

In the third group, complications were less common when the IUD was inserted 40 days postpartum compared to the other groups. This indicates that inserting an IUD 40 days after delivery is optimal, as by this time the uterus has fully contracted, reducing the risk of infection and expulsion (Table 4.1).

Table 3.1
Complications Associated with IUD Insertion

Types of Complications	1 group (n=37)		2 group (n=47)		3 group (n=44)	
	a bc	%	a bc	%	a bc	%
Complications During IUD						
Insertion Cervical Tears	1	2,7	0	0	0	0
Hemorrhage	4	10,8	3	6,4	2	4,5
Uterine Perforation	0	0	0	0	1	2,3
Complications Arising During Contraception Process						
Pain Syndrome	6	16,2	7	14,9	5	11,4
Increased Menstrual Volume and Duration	5	13,5	6	12,8	3	6,8
Menometrorrhagias	0	0,0	1	2,1	2	4,5
IUD Expulsion	13	35,1	14	29,8	4	9,1
Inflammatory Complications	3	8,1	2	4,3	1	2,3
Inflammatory Complications	1	2,7	1	2,1	0	0,0

Clinical Example 1. Female patient S., born in 1974. The IUD was inserted after placental expulsion post-delivery.

Ultrasound Examination Protocol (1.5 months postpartum)

Uterus: The contours are smooth and clear, pear-shaped, positioned: sinistro, orientation: anteflexio. The ratio of the uterine body to the cervix is 2:1. Dimensions: length 52 mm (42-70 mm), thickness 40 mm (33-46 mm), width 51 mm (42-60 mm). The myometrium is homogeneous, with average echogenicity.

The endometrial thickness (M Echo) is 4 mm. Endometrial phase: proliferative. The uterine cavity is not expanded.

Cervix: Length 21 mm (20-40 mm), thickness 30 mm (30-35 mm), width 31 mm (30-40 mm). The contours are smooth and well-defined. The echostructure is homogeneous, with average echogenicity. The endocervical thickness is 2 mm. The cervical canal is not expanded, and the IUD is located within the cavity.

Right Ovary: Positioned adjacent to the uterine body. Length 39 mm (20-45 mm), thickness 37 mm (15-25 mm), width 37 mm (20-30 mm). The contours are smooth and well-defined. The echostructure is cellular, with average echogenicity.



Figure 3.1 - Patient S., born in 1974. IUD expulsion. Right-sided oophoritis.

Left ovary: Located 20 mm from the uterus. Length 21 mm (20-45 mm), thickness 16 mm (15-25 mm), width 25 mm (20-30 mm). Contours are smooth and well-defined. Echostructure is cellular, with average echogenicity. Conclusion: IUD expulsion. Right-sided oophoritis.

Clinical Case 2. Patient M., born in 1985. IUD inserted within 48 hours postpartum. Uterus: Contours are smooth and well-defined. Shape: pear-shaped. Position: sinistro. Condition: anteflexion. Ratio of uterine body to cervix: 2:1.



Figure 3.2. Female patient M., born in 1985. The IUD was inserted within 48 hours postpartum.

Dimensions: Length 58 mm (42-70 mm), thickness 45 mm (33-46 mm), width 45 mm (42-60 mm). The myometrium is homogeneous, with average echogenicity. Endometrial thickness (M Echo) is 3 mm. Endometrial phase: proliferative.

Uterine Cavity: Not enlarged. The IUD is present in the uterine cavity.

Cervix: Length 23 mm (20-40 mm), thickness 32 mm (30-35 mm), width 33 mm (30-40 mm). The contours are smooth and well-defined. The echostructure is homogeneous, with average echogenicity. The endocervical thickness is 2 mm. The cervical canal is not expanded.

Right Ovary: Positioned adjacent to the uterine body. Length 31 mm (20-45 mm), thickness 22 mm (15-25 mm), width 24 mm (20-30 mm). The contours are smooth and well-defined. The echostructure is cellular, with average echogenicity.

Left Ovary: Positioned 20 mm from the uterus. Length 21 mm (20-45 mm), thickness 16 mm (15-25 mm), width 25 mm (20-30 mm). The contours are smooth and well-defined. The echostructure is cellular, with average echogenicity.

Conclusion: Intrauterine device.

Clinical Example 3: Female patient Sh., born in 1999. The IUD was inserted 40 days postpartum.



Figure 3.3. Female patient Sh., born in 1999. The IUD was inserted 40 days postpartum.

Uterus: The contours are smooth and well-defined. The shape is pear-shaped.

Position: Sinistro.

Orientation: Anteflexio.

Ratio of the uterine body to the cervix: 2:1.

Dimensions: Length 60 mm (42-70 mm), thickness 39 mm (33-46 mm), width 48 mm (42-60 mm). The myometrium is homogeneous, with average echogenicity. Endometrial thickness (M Echo) is 3 mm. Endometrial phase: proliferative.

Uterine Cavity: Not enlarged. The IUD is present in the uterine cavity.

Cervix: Length 27 mm (20-40 mm), thickness 33 mm (30-35 mm), width 30 mm (30-40 mm). The contours are smooth and well-defined. The echostructure is homogeneous, with average echogenicity. The endocervical thickness is 2 mm. The cervical canal is not expanded.

Right Ovary: Positioned adjacent to the uterine body. Length 36 mm (20-45 mm), thickness 19 mm (15-25 mm), width 29 mm (20-30 mm). The contours are smooth and well-defined. The echostructure is cellular, with uneven echogenicity, showing a dense 20 mm mass.

Left Ovary: Positioned 20 mm from the uterus. Length 28 mm (20-45 mm), thickness 21 mm (15-25 mm), width 25 mm (20-30 mm). The contours are smooth and well-defined. The echostructure is cellular, with average echogenicity.

Conclusion: Intrauterine device. Right ovarian cyst.

3.5. Development of a Prognostic Map for Predicting Complications from IUD Insertion in the Postpartum Period

Currently, various computational methods have been developed for diagnosing and predicting a range of somatic diseases. However, there are no established predictions for the development of complications related to IUD insertion in the postpartum period.

In our opinion, identifying the risk factors for complications from IUD insertion in the postpartum period through the comparison of different prognostic criteria is essential for preventing such complications. Using the method of organized intensive indicators (OII) by E.N. Shigan, which is based on Bayes' probability method, we developed prognostic matrices corresponding to patient history and clinical symptoms [14].

To create a prognostic table, comparative indicators of the expected event were derived by evaluating the most significant factors. The importance of the factors and their levels were determined using a relative risk indicator (R). This indicator reflects the ratio of the maximum intensity level (c) to the minimum (d) for each individual factor ($R=c/d$).

If the factor has no effect, it is equal to 1. The higher the R level, the greater its significance in the development of pathology.

The essence of the method is that instead of conventional intensive indicators, OII is used, which can be calculated using the following formula: $N=r/M$, where N is the organized intensive indicator (OII), r represents 100.

Table 3.2

Prognostic Chart for Comprehensive Assessment of Risk for Complications Development

Risk Factors		%	ТСИК	R	X		
						мин	Max
Cervical Tears	Present	42,1	0,598	6,75	4,01	4,01	11,2
	Absent	15,3	1,118		11,2		
Hemorrhage	Present	26,7	0,367	4,85	1,88	1,88	8,63
	Absent	5,5	1,78		8,63		
Uterine Perforation	Present	73,3	0,707	1,92	1,36	1,36	2,61
	Absent	38,2	1,357		2,61		
Pain Syndrome	Present	22,2	0,300	6,17	1,85	1,85	11,4
	Absent	3,6	1,850		11,4		

Increased Menstrual Volume and Duration	Present	71,1	0,496	3,26	1,62	1,62	5,26
	Absent	21,8	1,616		5,26		
Menometrorrhagias	Present	84,4	0,667	2,10	1,40	1,40	2,95
	Absent	40,0	1,407		2,95		
IUD Expulsion	Present	40,0	0,586	6,74	3,95	3,95	10,37
	Absent	14,5	1,538		10,37		
Cervical Stenosis	Present	93,3	1,414	2,33	1,41	1,41	3,29
	Absent	40,0	0,606		3,29		
Inflammatory Complications	Present	88,9	2,22	2,44	2,22	2,22	5,42
	Absent	36,4	0,91		5,42		
Pregnancy Occurrence	Present	95,6	1,31	2,39	3,13	1,31	6,12
	Absent	40,0	0,55		1,31		
Chronic Endometritis	Present	62,2	1,56	2,85	4,44	1,55	4,44
	Absent	21,8	0,55		1,55		
	Absent	38,2	0,76		1,29		
Salpingo-oophoritis	>4,19	55,6	1,25	1,67	2,25	1,25	2,25
	<4,19	33,3	0,75		1,25		
History of Ectopic Pregnancy	>31,2	53,3	1,14	1,50	1,71	1,14	1,71
	<31,2	35,6	0,76		1,14		

In such cases, the average frequency of complications throughout the entire study (per 100 examined cases) is accepted as the normalizing value.

For example, the number of complications (r) in women with IUDs was 46.7, while complications without IUDs were 54.5. Among all examined, this indicator was 51.0. This value was accepted as the "normalizing" indicator (M). For instance, in women with IUDs, the number of complications (r) was 46.7, and without IUDs, it was 54.5. Among all examined, this indicator was 51.0. This value was accepted as the "normalizing" indicator (M).

By substituting the corresponding values into the above formula, we obtained the following standardized intensity indicators: for women, $TCI1 = 46.7/51.0 = 0.934$, and for complications, $TCI2 = 54.5/51.0 = 1.069$. The relative risk index (R) = $1.032 / 0.934 = 1.167$. Similarly, TCI was calculated for all other risk factors. The obtained results form an initial standard through which it is possible to comprehensively assess the risk of developing complications based on individual factors and their complexes in women with IUDs inserted at various postpartum periods.

It is known that the factors influencing the development of complications in women have different levels of impact. Therefore, we considered the values of relative risk indicators for each factor. By knowing the indicator of disease risk occurrence (R) and the standardized intensity indicator (N), the impact of a factor on the development of complications in women can be determined, that is, the prognostic coefficient (X).

This value is defined as follows: $X = R \cdot N$, where X is the integral indicator of risk from a single factor's impact (prognostic coefficient); N is the TCI for complications in women; R is the relative risk indicator.

In our example, if such a risk indicator (R) is 1.17, TCI1 is 0.916, and TCI2 is 1.069, then the integral indicator of the impact of each factor, or the prognostic coefficient, is as follows: A prognostic matrix based on anamnesis and clinical signs is presented below (Table 4.1).

The prognostic matrix takes into account all risk factors with their gradations, the integral risk indicator (X) for each factor, the relative risk indicator (R), and the sum of these across the factor complex (RN). Additionally, a normalization indicator, the average rate of complications across the study (N), is included.

Alongside the prognostic table, we determined the probable risk values for the accepted set of factors. The range of possible risk was established as follows:

In the prognostic table, we find the minimum values of the estimated coefficient (X) for each factor and summarize them. This value represents the initial value of the risk for this pathology.

For example, the minimal values of the prognostic indices (X) for all factors to assess the integral risk of developing complications are as follows: $4.01 + 1.88 + 1.36 + 1.85 + 1.62 + 1.40 + 3.95 + 1.41 + 2.22 + 1.31 + 1.55 + 1.25 + 1.14 + 2.0 + 1.16 = 26.1$ In this case, the minimum initial risk value is 26.1.

Subsequently, we find the sum of the maximum values of the prognostic indicators for each factor in the same way. $11.2 + 8.63 + 2.61 + 11.4 + 5.26 + 2.95 + 10.37 + 3.29 + 5.42 + 6.12 + 4.44 + 2.25 + 1.71 + 7.51 + 2.24 = 85.4$ In this case, the risk range is between 26.1 and 85.4.

This indicates that the higher the standardized integral indicator of the complex effect of studied factors, the higher the risk of developing complications when using IUDs, and thus more reasons exist to classify the individual as belonging to the group with poor prognosis.

Sub-range	Sub-range Size	Risk Group
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Low Probability	26.1÷45.9	Favorable Outcome
Medium Probability	46,0÷65,7	Requires Attention
High Probability	65,8÷85,4	Adverse Outcome

In this context, we have identified the potential risk range (26.1÷85.4) and its sub-ranges. Practically, it is advisable to divide all risk ranges into three intervals: low probability of complications development (26.1÷45.9), moderate probability (46.0÷65.7), and high probability (65.8÷85.4).

We have developed an electronic version of the prognostic chart for mobile and computer use. Through this electronic program, it is possible to detect the disease early and differentiate between the risk level groups. The prognostic chart can be used without internet access on computers and mobile devices, allowing for effective monitoring and control of pathological conditions.

Chapter IV. Forecasting and Preventive Measures for IUD Complications in the Postpartum Period

4.1. Prevention of Complications in Women with IUDs Inserted at Different Postpartum Stages

It is known that when an intrauterine device (IUD) is inserted, aseptic inflammation occurs in the endometrium as a reaction to a foreign body, causing lymphocytic leukocyte infiltration due to the disruption of vascular permeability. Modern IUDs should not be used for more than 3-5 years. Once the validity period of an IUD has expired, it should be removed during menstruation, following asepsis and antisepsis protocols.

Considering the activation of conditionally pathogenic and pathogenic microflora, the development of inflammatory processes, and changes in the endometrium, it is necessary to conduct preventive antibacterial treatment after IUD removal. It is essential to use simple and effective treatment methods that meet modern standards.

To prevent inflammation, antibacterial medications should be taken. Fluconazole medications are recommended to prevent candidiasis. In our opinion, after the removal of an IUD, vaginal sanitation should be conducted to restore the vaginal microbiocenosis and prevent pathogenic urogenital infection.

Local vaginal suppositories should be used after taking a smear for bacteriological examination. These suppositories should have a broad spectrum and should not affect the normal vaginal biocenosis.

According to the standards developed in Uzbekistan, to prevent IUD expulsion and pain syndrome, NSAIDs such as indomethacin, dicloran, and paracetamol are recommended for use for five days after IUD insertion at a dose of 250 mg three times a day or one rectal suppository twice a day [17, 18].

Disturbances in the menstrual cycle, such as hyperpolymenorrhea and menometrorrhagia, are observed in 11-24% of women with IUDs. According to various studies, blood loss during menstruation in women who do not use contraceptive methods ranges from 30 to 80 ml. Most modern IUDs increase menstrual blood loss, raising the risk of developing iron deficiency anemia. Copper-containing IUDs increase menstrual bleeding by 20-50% during the initial 6-12 months of contraception, but the blood loss gradually returns to baseline levels.

The causes of menstrual irregularities associated with IUD use are not fully understood. Many researchers associate them with endometrial microtraumas, changes in fibrinolytic activity, and hyperprostaglandinemia. The mechanism for reducing blood loss is multifactorial and includes a decrease in endometrial damage and vascularization, reduced prostaglandin production, and decreased fibrinolytic activity.

By analyzing complications caused by IUDs inserted at different postpartum times, we concluded that inserting an IUD within 10 minutes after placental delivery is an effective method. Women are ready for protection from future unintended pregnancies by the end of pregnancy, and IUD insertion does not affect lactation. However, it should be noted that most complications discussed above were observed in this first group.

In the second group, where IUDs were inserted within 48 hours after childbirth, the number of complications slightly decreased, but the risk of developing inflammatory complications increased.

In the third group of women, who had IUDs inserted 40 days after childbirth, mild pain was observed, but it resolved without treatment within a few hours. Complications were reduced by 2-3 times compared to the first and second groups, indicating that inserting an IUD 40 days postpartum is optimal.

Developing predictive maps for assessing the risk of complications associated with IUD use in women allows for early anticipation of potential issues and timely implementation of preventive measures.

4.2. Prevention of IUD-Related Complications in Postpartum Women at the National Policy Level

One of the main and urgent issues in the reform of healthcare in our country is the monitoring of women's health and ensuring the birth of a healthy generation. Ensuring the health of women and children, facilitating healthy motherhood and newborns, and reducing mortality are fundamental principles of childbirth management. In many countries, family planning contributes to the prevention of unintended pregnancies, optimizes the intervals between pregnancies and births, and promotes the creation of a healthy offspring. According to researchers, preventing pregnancies in women younger than 19 and older than 35 and ensuring a 2-3 year interval between births can reduce maternal and child mortality by 2.5 times. Additionally, short intervals between pregnancies can adversely affect not only the mother's health but also the development of newborns, as incomplete recovery of the mother's metabolic processes can slow the full development of the fetus. Therefore, efforts are being made in our country to optimize birth intervals, with the widespread use of intrauterine devices yielding effective results.

In the modern world, every woman of reproductive age has a wide range of contraceptive options that meet her individual needs, lifestyle, and goals [2, 4, 6]. The functional state of a woman's reproductive system is one of the indicators of her overall health [1]. Every woman with childbearing potential has the right to decide how many children she wants and at what intervals.

Contraception is a family planning method that helps prevent abortion and its complications, thus holding significant medical and social importance. In Uzbekistan, the most common type of contraception is the intrauterine device, a highly effective method. Fertility is quickly restored after the removal of the IUD, it does not have systemic effects on the body, does not require daily monitoring, and is suitable for all social groups.

Among the methods of contraception, intrauterine devices are considered the most popular for preventing unwanted pregnancies. According to the World Health Organization (WHO), more than 80 million women worldwide use intrauterine devices, making it the second most used method after oral contraception. Approximately 18% of women use various types of IUDs. This method's high efficacy, lack of negative effects on the female body, rapid restoration of fertility after removal, convenience for any social group, independence from sexual activity, and the absence of the need for daily use, as with oral contraceptives, contribute to its popularity. IUDs are effective with a Pearl Index of 1 per 100 [2].

Adverse effects during IUD insertion are rare. Typically, all side effects disappear three months after insertion. Factors contributing to IUD complications include:

- Incorrect assessment of contraindications (e.g., women in high-risk groups for pelvic inflammatory diseases and cases of uterine cavity deformity);
- Patient indifference;
- Inexperienced specialists;
- Poor-quality contraceptive devices.

Possible complications with the use of intrauterine devices include:

- Infectious and inflammatory diseases of the pelvic organs;
- Severe pain;
- Expulsion (displacement or expulsion) of the IUD;
- Significant bleeding unresponsive to medication.

Classification of complications by time of occurrence:

- Complications occurring at the time of IUD insertion;
- Complications following the insertion of the IUD.

Complications at the time of IUD insertion include:

- Cervical lacerations, a rare complication resulting from improper IUD insertion techniques and cervical stenosis. Treatment depends on the severity of the laceration (surgical suturing or conservative therapy).
- Uterine perforation, a rare complication, occurs with chronic uterine inflammation or violations of insertion techniques. Perforation may be partial or complete. In case of perforation, severe pain in the lower abdomen and symptoms of internal bleeding may occur. If the diagnosis is unclear, hysteroscopy or ultrasound should be performed. Partial perforation requires removal of the IUD through the vagina and conservative treatment. Complete perforation requires laparoscopy to remove the IUD and repair the uterine wall. In severe cases, uterine amputation may be necessary.
- Bleeding during IUD insertion. If bleeding occurs, cervical laceration or perforation should be suspected. If bleeding is significant, insertion should be halted, and alternative contraceptive methods should be recommended.
- Vasovagal reactions occur as a result of irritation of the vagus nerve (n. vagus). Symptoms include pallor, rapid heartbeat, and lowered blood pressure. In such cases, IUD insertion should be stopped. Vasovagal reactions do not require treatment; only paracervical anesthesia is used during insertion.

The postpartum period is a crucial phase in a woman's life, as the entire body begins self-recovery after childbirth. The restoration of reproductive function depends on many factors, including time, breastfeeding, and lifestyle. The involution of the reproductive organs begins soon after delivery, and by the 10th day postpartum, the cervical canal is fully formed. The menstrual cycle is typically

restored around six months after delivery for breastfeeding mothers and 4-6 months for non-breastfeeding mothers.

After the postpartum period, when organs and systems return to their normal state, the possibility of future pregnancies should be considered. If a woman does not use contraceptive methods, the risk of becoming pregnant again soon after delivery is high. Sexual activity generally resumes around the sixth week postpartum, making contraception important at that stage.

If a woman is breastfeeding, the most suitable contraceptive method is the intrauterine device.

Insertion of the intrauterine device, as recommended by WHO, can be performed postpartum, within 48 hours, or after 40 days. The use of IUDs during the postpartum period has been the subject of significant debate. Inserting the IUD within 10 minutes after placental delivery has advantages as it provides immediate contraceptive effectiveness and does not interfere with lactation, unlike some oral contraceptives.

Studies have shown that when postplacental IUDs are inserted, the risk of infection and prolonged bleeding is not significant (WHO data, 2015). However, experience has shown that inserting the IUD right after placental delivery often leads to higher rates of expulsion and unintended pregnancy. Some researchers believe that IUD insertion during the postpartum period should be avoided.

There are no specific recommendations on inserting the IUD after placental delivery, within 48 hours, or after 40 days. These points collectively highlight the relevance of studying IUD use during the postpartum period.

One of the most common complications is the expulsion of the IUD from the uterine cavity. This can occur within a few hours after insertion or within the first three months. If the IUD remains in place after these periods, it can be considered "settled." The expulsion of the IUD does not impact the woman's condition, but if it is detected, the woman should consult a doctor to select an alternative method of contraception. The body adapts to the presence of the IUD within 3-8 months after insertion. During this period, inflammation in the urinary and reproductive systems may develop. If pain in the lower abdomen, unusual discharge from the vagina, or fever occurs, an immediate visit to a gynecologist is necessary. Some cases involve light or heavy bleeding after IUD insertion, requiring treatment. If bleeding persists despite treatment, the IUD should be removed.

If a woman experiences severe pain during insertion or if insertion becomes difficult, the IUD should be reconsidered.

The study was based on the clinical and laboratory examinations of 128 women of comparable age who visited the maternity department of the 2nd Maternity Complex in Andijan City and the 9th Maternity Complex in Tashkent City during 2013-2014. All examined women were of reproductive age without severe extragenital diseases and were of comparable ages.

Contraindications recommended by WHO were considered during the insertion of the IUD (Copper T 380A). Different opinions exist regarding the timing of IUD insertion. WHO specialists recommend inserting the IUD immediately after placental delivery and within the first 48 hours postpartum. Before IUD insertion following placental delivery, bimanual examination is required. The chosen contraceptive is manually inserted into the uterine cavity under aseptic conditions. After 40 days, the control strings are trimmed.

Prior to IUD insertion, a bimanual examination and uterine cavity probing were performed. We conducted bacteriological tests for all patients. Currently, the preferred method for assessing vaginal biocenosis is microscopy of a vaginal smear stained using Gram's method, which has nearly 100% sensitivity and specificity. Evaluation criteria were chosen based on the average number of leukocytes in the field of view, types of flora, and growth abundance.

IUD insertion is permissible when the vaginal cleanliness grade is I-II. Patients with a vaginal cleanliness grade of III-IV or those with existing inflammatory diseases of the genital organs were excluded from the study and recommended to undergo thorough screening for sexually transmitted infections (STIs) and etiotropic treatment with periodic follow-ups. Patients who had been treated for chronic pelvic inflammatory disease (PID) were advised to use an IUD only after 6-10 months if there were no signs of inflammation and contraindications were considered.

Following IUD insertion, sexual activity and heavy physical exertion were not recommended for one week. We conducted the first medical examination within 7-10 days, which included an ultrasound scan to verify the positioning of the IUD in the uterine cavity.

One significant drawback of this method is the risk of expulsion. While some authors have reported a low incidence of complications (1-6%), analyses by international reproductive health organizations indicated a higher incidence of IUD expulsion (31-41%).

The risk of IUD expulsion can be reduced by:

- Inserting the IUD within 10 minutes of placental delivery;
- Manually removing blood clots from the uterine cavity;
- Manually inserting the IUD into the uterine cavity;

- Placing the IUD at the uterine fundus.

When the IUD is inserted later, within 48 hours postpartum, in 47 (34.9%) cases, the uterus has contracted adequately, allowing easy insertion of the applicator through the cervical canal. This reduces the risk of expulsion.

In 44 (35.4%) cases, when the IUD was inserted after 40 days postpartum, the uterus had fully contracted, resulting in fewer complications.

IUD insertion and removal should only be performed in medical facilities. To rule out contraindications, we recommended several pre-procedure examinations. Preparatory measures included gathering anamnestic data, reviewing medical history, and conducting a vaginal and cervical examination.

The following clinical laboratory tests and diagnostic procedures were ordered:

- Vaginal and cervical swabs;
- Blood tests for HIV, HBsAg for hepatitis B, and Wassermann reaction for syphilis;
- Ultrasound examination of pelvic organs;
- General blood and urine tests;
- Evaluation of uterine position and size;
- Laboratory tests to exclude STIs.

After completing these examinations, we inserted the IUD into the uterine cavity postpartum, within 48 hours, and after 40 days.

We found that Th1 cells produce potent pro-inflammatory cytokines such as IL-1 β , TNF- α , and others [8, 12]. Th2 cells mainly produce anti-inflammatory cytokines like IL-4, promoting humoral immunity. An imbalance in Th1/Th2 cytokine production is significant in the immunopathogenesis of inflammatory processes. Based on this, we studied the cytokine composition in the blood of women with IUDs over time.

The research indicated that pre-insertion inflammatory cytokine levels in the blood were similar to those in the control group. Three months post-IUD insertion, IL-6 levels in the blood of the main group decreased compared to the control group, while IL-1 β levels increased by 1.53 and 1.49 times the norm, and TNF- α increased by 1.4 and 1.29 times, respectively. These results corresponded with histological changes observed in the endometrium.

According to literature, IL-1 β is a multifunctional cytokine involved in non-specific protection and specific immunity regulation, playing a crucial role in the body's initial response to pathogens [12]. It regulates and activates inflammatory and immune processes, stimulating neutrophils, T and B lymphocytes, acute-phase proteins, cytokines (IL-2, -3, -6, TNF- α), adhesion molecules (E-selectins),

procoagulants, and prostaglandins. The increase in IL-1 β in our patients may be related to the synthesis of pre-IL-1 β facilitated by CD40 ligand and the release of biologically active cytokines from endothelial cells.

IL-6 levels showed minor changes and increased significantly by day 40 in groups 2 and 3 compared to the control group. By the third month, only group 3 showed elevated cytokine levels, which differed significantly from women without inflammatory signs. By the end of the observation period (six months), all groups' levels aligned with the control group. IL-6 induces acute-phase protein synthesis, making it comparable to inflammatory cytokines like IL-1 β and TNF- α . Literature indicates that IL-6 can increase c-sis mRNA levels in human endothelial cells, contributing to vascular effects in inflammation [12].

TNF- α levels showed a statistically significant increase on day 40 in all groups, particularly in groups 2 and 3. This elevation persisted throughout the study period and remained significantly different from the values in the group of women without inflammation. It is worth noting that TNF- α and β (lymphotoxin) are part of the tumor necrosis factor group. TNF- α is produced by monocytes/macrophages, endothelial cells, mast and myeloid cells, lymphokine-activated killer (LAK) cells, neuroglia, and, in some cases, activated T lymphocytes. The release of TNF leads to increased capillary permeability, damage to vascular endothelium, and the formation of vascular thrombosis. TNF- α plays a critical role in the development of inflammatory vascular injury. The excessive levels of TNF- α , IL-1 β , and IL-6, as well as IL-10, help sustain the inflammatory process throughout the body.

Our attention focused on lymphocytes, which participate in cellular adaptation and humoral immunity. In our research, we sought answers to questions about the role of lymphocyte-platelet adhesion and the feasibility of applying this test in clinical practice. We found that lymphocytes can form aggregates with platelets (lymphocyte-platelet aggregates or LTA).

During inflammation, the ability of lymphocytes to adhere to platelets decreases. The LTA level and degree of adhesion in inflammation demonstrate the functional capacity of immune cells more clearly than the lymphocyte count alone.

Adhesion levels increased with the timing of IUD insertion; the later the IUD was inserted, the higher the LTA count. The optimal LTA value increased threefold by the end of the first year, with the adhesion index rising by 1.97 times but remaining 25.1% below the control value.

Key observations include:

- Excess levels of IL-1 β , IL-6, and TNF cytokines support ongoing inflammatory processes within the body, reaching control group values within a year in group 3.

- The LTA level and adhesion index increased depending on the timing of IUD insertion, showing that the later the IUD was inserted, the higher the LTA level. The optimal LTA value increased threefold by the end of the first year for group 3, with the adhesion index rising 1.97 times but still 25.1% below the control value.
- The concentration of nitric oxide in blood serum decreased by the end of six months post-IUD insertion but reached the control group level in group 3 by the end of one year. This suggests that inserting an IUD 40 days postpartum is optimal.

Complications with IUDs inserted in the postpartum period were more likely in cases involving a history of menstrual cycle disorders, chronic pelvic inflammatory disease (PID) in remission, or when contraindications for IUD insertion were disregarded.

Morphological changes in the endometrium are observed with IUD use, resulting from localized mechanical damage and inflammation that affect hemostasis. These changes are related to the presence of a foreign object and are independent of the menstrual cycle phases. The size, shape, and composition of the IUD influence endometrial changes. After IUD insertion, uterine contractions contribute to morphological changes in the endometrium near and in contact with the device. Two types of morphological changes in the endometrium were identified. A histological examination of the endometrium was conducted on 100 women using IUDs.

The IUD was removed due to bleeding, pain, pelvic inflammatory diseases, the patient's desire for pregnancy, or a preference for alternative contraception. The duration of IUD use was not considered. The mechanical impact of the IUD depends on its size, type, elasticity, and rigidity. Properly selected IUDs cause only surface abrasions and stromal thickening in the areas they contact. Incorrectly chosen IUDs can lead to deep erosions and stromal edema. The areas of the endometrium not in contact with the IUD appear normal. Hypotrophy of the endometrium develops in areas where the IUD contacts the mucous membrane. These changes occur within the first six months after insertion.

We classified IUD-related complications into two categories: complications during the procedure and complications during the contraceptive period.

Mild pain may occur during the contraceptive process but typically subsides within a few hours without treatment. Menstrual cycles resumed in an average of 5.2 ± 0.8 months following postpartum IUD insertion. Pain during menstruation was observed in 19 (51.4%) women, while increased menstrual volume and prolonged periods were reported in 22 (59.5%) women, leading to anemia. Expulsion was the most common sign associated with IUD insertion after placental delivery.

Expulsion occurred in 3 (8.1%) women within the first days after IUD insertion and in 1 (1.27%) woman after four months. Inflammatory complications were observed in 15 (40.5%) women, and pregnancy occurred in 2 (5.4%) women. It is important to note that complications were more frequently observed when IUDs were inserted immediately after placental delivery. Inserting an IUD within 10 minutes after placental delivery prepares the woman for preventing subsequent unintended pregnancies, providing an immediate contraceptive effect without affecting lactation, unlike some oral contraceptives.

When an IUD was inserted within 48 hours postpartum, the menstrual cycle resumed in 6.3% of women. Intermenstrual pain was reported in 10.3–12.1% of cases, mostly in young, first-time mothers, attributed to uterine contractions due to hyperprostaglandinemia and ovarian hypofunction.

In the third group of women, who had IUDs inserted 40 days postpartum, fewer complications were observed compared to the other groups. This suggests that the optimal time for IUD insertion is 40 days postpartum, when the uterus has fully contracted, minimizing the risk of infection and expulsion.

In our opinion, identifying risk factors for complications related to postpartum IUD insertion by comparing different prognostic criteria is crucial for predicting and preventing such complications. Prognostic matrices based on the method of regulated intensive indices (RII) by E.N. Shigan, grounded in Bayesian probability, were developed in accordance with clinical symptoms and patient history.

The timing of IUD insertion is still debated. Inserting an IUD immediately after placental delivery increases the risk of expulsion due to rapid uterine contractions. Inserting it after 48 hours increases the risk of infection due to fluid retention in the uterus. In our view, the most favorable time is 40 days postpartum, as the uterus has contracted, reducing the risk of infection and expulsion.

Intrauterine contraception does not affect future fertility and is an effective, convenient method for birth control. In summary, intrauterine contraception is a highly effective method for preventing unwanted pregnancies, with IUDs reaching 99.8% effectiveness (Pearl Index of 0.2). They have no systemic negative effects on the body, are simple to use, can be employed long-term, and fertility quickly returns after removal.

The effectiveness of an IUD is approximately 98%, and it can be used for 2–5 years. Routine medical checkups are not necessary post-insertion. IUDs do not have systemic effects on the body, and reproductive function can be restored within 1–2 menstrual cycles after removal. IUDs are recommended for all women of reproductive age, being cost-effective, convenient, and non-invasive. However, they do not protect against sexually transmitted infections. Partial or complete expulsion of the IUD from the uterine cavity may lead to unintended pregnancies.

In conclusion, intrauterine devices are an effective method for preventing unwanted pregnancies. The development of new types of IUDs has minimized complications associated with their insertion and use. Nonetheless, it is essential to properly select candidates for IUD use, consider indications and contraindications, and monitor women consistently after insertion.

Chapter V. Providing Postpartum Women with Contraceptive Counseling and Criteria for Assessing Their Somatic Condition

5.1. Counseling on Contraceptive Methods

The concept of family planning refers to having children at any time and in any desired number. If a couple wishes to delay childbirth, they can choose from several existing methods of contraception. These methods are also referred to as family planning techniques, child spacing methods, or contraceptive means.

Contraception is a method used to prevent unwanted pregnancy. To use contraceptive methods effectively, one should be familiar with each method, understand their advantages and disadvantages, and, if necessary, obtain detailed information. Each woman or couple has the right to choose a method that suits them and does not harm their health (and in some cases may even provide health benefits).

Having children at any time and in any desired number is known as family planning.

There are several reasons for using family planning methods:

1. Having children too early
2. Having children too late
3. Child spacing
4. Having many children
5. Illnesses during pregnancy

WHO's main principles for forming a healthy family:

- **Having children too early:** In women under the age of 16, the pelvic area may not be fully developed, which can lead to difficult and prolonged childbirth.
- **Having children too late:** For women over 35 or those who have had many children, childbirth can be very risky due to medical complications.
- **Child spacing:** For complete recovery of the woman's body after childbirth, there should be an interval of 2-3 years between pregnancies.
- **Having many children:** Women who have given birth to more than four children have a higher risk of complications like bleeding and eclampsia during and after childbirth.

- **If ill:** If a woman is ill during pregnancy, it can endanger her and the developing fetus.

After deciding to use contraception, choosing the method is essential. To make an informed decision about using contraception, a woman must know the different types, advantages, and disadvantages of the methods.

When information about various contraception methods is provided, women or couples may have the following questions:

- Is the method effective? Does it prevent pregnancy effectively?
- Does it prevent sexually transmitted infections (STIs)? How does it prevent STIs?
- Is it safe? Some family planning methods may not be suitable if a woman has certain medical conditions.
- Is it easy to use?
- Is the partner willing to use family planning methods?
- Are there precautions or conditions that concern the patient? For example, women who have had multiple children or those who are breastfeeding.
- Is the method affordable?
- Is it easily accessible? Does it require frequent visits to the clinic or health center?
- Does the method have side effects that may cause issues?

Remember, each couple should choose the method that suits them best.

Contraceptive Methods

1. **Hormonal Contraception:** Combined hormonal pills, progestin-only pills, patches, injections (Depo-Provera - DMPA)
2. **Emergency/Quick Contraception**
3. **Intrauterine Devices (IUDs)**
4. **Lactational Amenorrhea Method (LAM)**
5. **Condoms**
6. **Spermicides**
7. **Voluntary Surgical Contraception/Sterilization**
8. **Calendar/Timing Method**

5.2. Advantages and Disadvantages of Different Contraceptive Methods

Plan for counseling on IUDs:

- Provide general information about contraceptive methods.
- Information about IUDs:
 - Mechanism of action.
 - Advantages and contraindications.

- Potential side effects.
- Referral for medical advice.

Counseling based on this plan will help answer women's questions and assist in deciding which method to use. Once a woman chooses a method, it is recommended that she consults a doctor.

Intrauterine Device (IUD)

An IUD is a flexible plastic device with a copper wire. Once inserted into the uterus, depending on the type, it can remain in place for up to 10 years. It must be removed at a medical facility, and a new IUD can be inserted if desired. A woman can remove the IUD at any time if she decides to have children or switch to another contraception method.

Advantages:

- Maintains reproductive activity.
- Does not interfere with sexual intercourse.
- Requires minimal thought once placed; occasional checking of the strings is needed.
- Can be used for an extended period (up to 10 years).

Contraindications:

- Presence of STIs or chronic inflammation of the reproductive organs.
- Pregnancy.
- Unexplained vaginal bleeding.
- Congenital or acquired abnormalities of the reproductive organs.
- Severe anemia.

Potential Side Effects:

- Heavy and prolonged menstruation initially.
- Increased risk of STIs.
- IUD expulsion.
- Rarely, uterine perforation.

Hormonal Contraception

(Combined oral contraceptive pills, progestin-only pills, patch, DMPA injection)

Hormonal contraceptives contain small doses of estrogen and progestin, or only estrogen hormones.

Advantages:

- High effectiveness - 99.9%
- Not related to sexual intercourse
- Reduces the amount of blood lost during menstruation.
- Helps prevent or reduce anemia.
- Reduces the risk of ovarian and uterine cancer.

Contraindications:

- Severe liver, kidney, or cardiovascular diseases.
- Diabetes.
- Pregnancy.
- Women who are breastfeeding a baby younger than 6 months.
- Heavy smokers over the age of 35.

Potential Side Effects:

- Initial nausea and headaches (usually subside after a few days)
- Does not protect against STIs
- Pills must be taken daily without fail.

DMPA Injection

An injection containing progestin. When used correctly and consistently, it has 99.9% effectiveness. Women receive one injection every three months during a doctor's appointment.

Advantages:

- Highly effective and long-lasting.
- Suitable for breastfeeding women.
- Not related to sexual intercourse.
- Prevents certain conditions like ectopic pregnancy, endometrial cancer, and fibroids.

Contraindications:

- Women breastfeeding babies under 6 months.
- Pregnancy.
- High blood pressure.
- Active liver disease.
- Rare conditions affecting certain women.

Potential Side Effects:

- Possible irregular bleeding and amenorrhea.
- Minor weight gain.
- Mild headaches.

- It may take several months for fertility to return after stopping use.

Lactational Amenorrhea Method (LAM)

This temporary contraception method has 98% effectiveness. It is suitable for women who breastfeed every 2-3 hours during the day and 4-5 hours at night for six months postpartum, without supplemental feeding, and whose menstrual cycle has not returned.

Advantages:

- Natural method.

Contraindications:

- Strict adherence to all criteria is necessary to ensure effectiveness.

Condoms

A thin latex or plastic sheath worn over the penis during sexual intercourse. When used correctly during every sexual act, it has a 97% effectiveness rate.

Advantages:

- Protects against STIs, including HIV/AIDS, and prevents pregnancy when used correctly.
- Easy to obtain and affordable.
- Provides immediate protection when needed.

Potential Side Effects:

- Rare latex allergies may prevent use.
- Incorrect use can lead to breakage.

Spermicides

Available in the form of foam, cream, gel, or suppository, inserted into the vagina before intercourse to weaken or kill sperm.

Advantages:

- Helps prevent certain types of STIs and pregnancy when used correctly.
- Suitable for breastfeeding women.
- Does not affect lactation.
- Provides immediate contraception when needed.

Voluntary Surgical Contraception

This procedure involves a surgical operation to prevent pregnancy and can be performed on both men and women.

- Male sterilization (vasectomy) involves cutting the tubes that carry sperm from the testicles.
- Female sterilization involves tying or cutting the fallopian tubes that carry eggs to the uterus.

Advantages:

- Highly effective family planning method.

Contraindications:

- Not suitable for couples or individuals who are unsure about not wanting more children.

Potential Side Effects:

- Some discomfort may occur for a few days post-operation.

Emergency/Quick Contraception

Hormonal pills that must be taken within 72 hours after unprotected intercourse or IUD insertion within five days can prevent pregnancy.

Advantages:

- Useful in unexpected situations when other methods were not used.

Contraindications:

- Women with a history of heart attack, stroke, high blood pressure, leg or lung clots, or those with breast or reproductive system cancer, or liver cancer, should not use these pills.

Potential Side Effects:

- Nausea, mild headaches, and breast pain may occur after taking the pills.

Calendar/Timing Method

A natural contraception method. The woman tracks her menstrual cycle carefully and avoids sexual activity or uses condoms during fertile days.

Effectiveness: 80%.

Advantages:

- Natural method.

Contraindications:

- Women must track their cycle diligently. Couples must be prepared to abstain or use condoms during fertile days.
- May be difficult for women with irregular cycles, those who are breastfeeding, very young, or approaching menopause.

Emergency Contraception (EC)

This method is used when intercourse occurs without contraceptives (in cases such as infrequent sexual activity, sexual assault, etc.). EC is an important method in preventing pregnancy and can improve the quality of services offered to those who seek help regarding unplanned pregnancy.

The following methods are used for EC under specific rules:

- Combined Oral Contraceptives (COCs)
- Progestin-only contraceptives (POCs)
- Intrauterine devices (IUDs)

For example, low-dose COCs containing 30 mcg of ethinylestradiol and 150 mg of levonorgestrel should be taken within 72 hours of unprotected intercourse. Initially, 4 tablets are taken, followed by 2 more tablets after 12 hours. POCs containing 0.03 mg levonorgestrel require an intake of 20 tablets as an initial dose within 72 hours, followed by 2 more after 12 hours.

Mechanism of Action: EC pills are believed to prevent ovulation, fertilization, and implantation. EC pills are ineffective once implantation has begun; therefore, they should be taken within 72 hours of unprotected intercourse.

Note: EC pills do not cause abortion.

Side Effects:

- Nausea, usually lasting no more than 24 hours. To mitigate this, pills can be taken with food or before bedtime.
- Vomiting: If vomiting occurs within 2 hours of taking the EC pill, the dose should be repeated. In severe cases, the pills can be inserted vaginally.
- Irregular uterine bleeding: Some women may experience spotting after taking EC pills.
- Other side effects may include breast tenderness, headaches, and dizziness, which usually last longer than 24 hours.

Contraindications:

- EC pills should not be used by pregnant women.
- EC pills are only intended for emergency use.

Using IUDs as EC: IUDs should be inserted within the first 5 days after unprotected intercourse. This method is 90% effective.

Mechanism of Action: This involves enhanced peristalsis of the fallopian tubes and changes in the histochemical structure of the endometrium.

Contraindications:

- IUDs are not recommended for women who have not given birth.

Conditions with Potential Contraindications for EC:

- **Severe cardiovascular diseases:** The duration of EC use is shorter than that of regular COCs or progestin-only pills (POPs), resulting in lower clinical impact.
- **Angina, Migraine, Severe liver disease (including jaundice):** EC use duration is short compared to regular COCs or POPs, minimizing clinical impact.

Intrauterine Devices (IUDs): Typically, IUDs consist of a small, flexible plastic frame, often equipped with copper wire. The IUD is inserted into the uterus through the vagina and may have one or two attached strings hanging through the cervix into the vagina, allowing the user to check for its placement.

Advantages:

- Provides long-term, effective protection after a single decision.
- TCU-380A IUDs are effective for at least 10 years.
- Very effective and does not interfere with intercourse.
- Does not have the side effects of hormonal methods.
- Fertility returns immediately after removal.
- Does not affect the quantity or quality of breast milk.
- Can be used during menopause (up to a year or more after the last menstruation).
- Does not interact with other medications.
- Reduces the risk of ectopic pregnancy compared to not using any contraceptive method.

Disadvantages:

- Common side effects include changes in bleeding patterns, longer and heavier menstruation, and spotting between periods.
- Severe cramps and pain may occur after insertion for a few days.
- Risk of uterine perforation is rare but possible if the IUD is improperly inserted.
- Does not protect against STIs, including HIV/AIDS.

- Increases the risk of pelvic inflammatory disease (PID), potentially leading to infertility.

Other Notable Considerations:

- The woman cannot remove the IUD independently; it must be removed by a trained healthcare provider.
- Spontaneous expulsion of the IUD may occur without the woman noticing, especially if inserted soon after childbirth.
- Women need to check for the IUD strings periodically.

Potential Complications by Age and Conditions:

- Women under 20 may experience a higher risk of expulsion and STIs due to behavioral factors.
- Postpartum women may face higher risks if the IUD is inserted soon after delivery or abortion.

Let me know if you need further continuation or more details on specific sections!

Special Conditions for IUD Usage:

- **Postpartum Insertion:** IUD insertion is generally safe 48 hours after delivery. If inserted later (between 48 hours and 4 weeks), the risk of complications, such as infection, increases.
- **After Abortion:** In cases of septic abortion, immediate IUD insertion can worsen the condition.
- **Ectopic Pregnancy History:** Although the overall risk of ectopic pregnancy is low due to the high efficacy of IUDs, if pregnancy does occur with an IUD, the likelihood of it being ectopic is increased.
- **Hypertension and IUDs:** The theoretical effect of levonorgestrel (LNG) on lipids is considered minimal. Copper IUDs do not have restrictions related to hypertension.
- **Deep Vein Thrombosis (DVT) / Pulmonary Embolism (PE):** Some progestins may increase the risk of venous thrombosis, but this risk is considerably lower than with combined oral contraceptives.
- **Ischemic Heart Disease and IUDs:** The potential impact of LNG on lipids should be considered. There are no limitations for copper IUDs.
- **Stroke Risk:** The use of LNG may affect lipids but is considered low-risk. Copper IUDs have no restrictions.
- **Endometriosis:** Copper IUDs may exacerbate pain associated with endometriosis, whereas LNG IUDs may help reduce it.
- **Severe Dysmenorrhea:** Copper IUDs may worsen symptoms, while LNG IUDs can help alleviate them.

- **Trophoblastic Disease:** Multiple curettages increase the risk of uterine perforation.
- **Cervical Intraepithelial Neoplasia (CIN):** There are theoretical concerns that LNG IUDs might exacerbate CIN.
- **Cervical Cancer (Pre-treatment):** IUD insertion has a higher risk of infection and bleeding. Removal may be necessary during treatment, increasing the risk of pregnancy.
- **Breast Disease:** The risk associated with LNG IUDs is lower than with high-dose hormonal contraceptives.
- **Endometrial Cancer:** Insertion may lead to infection, perforation, and bleeding risks. IUD removal is recommended during treatment.
- **Ovarian Cancer:** Removal may be required, increasing pregnancy risk.
- **Uterine Fibroids:** With structural changes in the uterus, IUD insertion may be difficult or impossible.
- **Anatomical Anomalies of the Uterus:** If present, insertion may be challenging.
- **Pelvic Inflammatory Disease (PID):** IUDs do not protect against STIs. Women with a high risk or history of STIs are more likely to develop PID, potentially causing infertility.
- **HIV Infection Risk:** IUDs do not protect against HIV.
- **Tuberculosis:** IUD insertion may worsen the patient's condition.
- **Diabetes:** The release of LNG from IUDs and its impact on glucose and lipid metabolism remain unclear, though the risk of thrombosis is not as high as with combined oral contraceptives.
- **History of Cholestasis:** Past cholestasis related to COC use suggests potential risk when using LNG IUDs.
- **Viral Hepatitis (Active):** Progestins undergo metabolism in the liver and may negatively affect those with impaired liver function.
- **Cirrhosis and Liver Tumors:** Progestins can impact women with liver conditions and may stimulate tumor growth.

CONCLUSIONS

Currently, over 120 million women use hormonal contraceptives to prevent unwanted pregnancies. Throughout years of widespread use, hormonal contraceptives have been continuously improved, and their proliferation and effects on the female body have been thoroughly studied, taking into account individual characteristics, social conditions, age, and both negative and positive impacts, along with the presence of various diseases. The choice of hormonal contraceptives is made exclusively by a physician. Before prescribing the medication, women undergo blood and urine tests, blood pressure measurements, and a general examination.

Thus, the necessity of protecting against unwanted pregnancy in the early postpartum months is evident. Depending on dietary habits and the time elapsed after childbirth, a woman may choose natural, barrier, intrauterine, hormonal, or surgical methods of contraception. It is important to remember that the main requirements for postpartum contraception are high effectiveness, safety, no negative effects on metabolic processes, and the ability to regulate the menstrual cycle.

The birth of a child radically changes a woman's life, as she devotes all her time and energy to caring for the baby. During this period, the physician's main task is to protect her from unplanned pregnancies that may occur even before her first postpartum menstruation. Therefore, the issue of postpartum contraception should be addressed immediately after delivery, taking into account the woman's age, the number of her children, and her preferences and plans for future pregnancies, through an individual approach within the framework of the concept of postpartum care, which has been the subject of recent regulatory documents.

The use of long-acting reversible contraceptive (LARC) methods, including intrauterine devices (IUDs), can significantly reduce the rate of unintended pregnancies. Insufficient use of these methods has been recognized by many professional communities. Currently, the U.S. Institute of Medicine has designated the expansion of these contraceptive methods as a national priority. Ensuring reliable and safe contraception to maintain the reproductive health of postpartum women is a key priority in healthcare for any country.

The integration of these two priority areas of obstetric and gynecological practice can lead to significant achievements in maintaining women's health and well-being over the long term. The selection of the type of IUD, its shape, and the timing of postpartum insertion are determined by the treating gynecologist. If an intrauterine contraceptive is placed during the postpartum period, it is recommended that the woman receive medical consultations every 5-6 months to assess her overall condition and rule out complications.

Postpartum IUD reviews by physicians are generally positive, as the device reliably protects against repeated conception. This is especially relevant for women who have delivered via cesarean section. If the woman has contraindications to the IUD after childbirth, an alternative method is prescribed.

The occurrence of IUD complications is as follows: among early complications, uterine wall perforation was observed in 54% (12 patients), uterine wall ingrowth of the IUD in 14% (3 patients), bleeding from pelvic organs in 9% (2 patients), and pelvic inflammatory diseases in 23% (6 patients). Among late complications, dysmenorrhea was noted in 76% (16 patients), ectopic pregnancy in 8% (2 patients), and cervical changes in 36% (9 patients). Additionally, atypical placement of the IUD was observed in 58% of cases in the abdominal cavity, 25% in the bladder, and 17% in the ovary.

Factors contributing to IUD complications include:

- Inadequate pre-insertion examinations (ultrasound, vaginal cleanliness grading, bimanual examination, complete blood count, etc.)
- Lack of timely gynecological check-ups after IUD placement
- Failure to adhere to the recommended duration of IUD use
- Carelessness in the insertion technique
- Disregard for the appropriate timing of IUD insertion
- Non-individualized selection of contraceptive methods

To reduce IUD complications, timely monitoring of the contraceptive's condition should be conducted after insertion at intervals of 10 days, 1 month, 3 months, and 6 months, significantly reducing IUD complications.

Thus, the necessity of protection against unwanted pregnancy in the early postpartum months is clear. Depending on diet and the time elapsed since childbirth, a woman can choose natural, barrier, intrauterine, hormonal, or surgical methods of contraception. It is important to remember that the main requirements for postpartum contraception are high effectiveness, safety, no adverse effects on metabolic processes, and the ability to regulate the menstrual cycle.

Intrauterine devices are one of the most effective methods of contraception. However, when using an IUD, the risk of developing infectious and inflammatory diseases of the pelvic organs and ectopic pregnancy increases. Structural and functional changes occur in the endometrium, menstrual cycle disorders may appear, and the composition of cervical microflora changes. In rare cases, the IUD may migrate to the pelvic bones or the free abdominal cavity, potentially perforating the uterus (with rectal or sigmoid colon involvement, ureterorectal or uterine-intestinal fistulas forming in the bladder).

Thus, although rare, obstetricians and gynecologists should be aware of the potential adverse outcomes of IUD use, such as uterine perforation, IUD translocation, purulent tubo-ovarian complex formation, pelvic peritonitis, and other infectious and inflammatory diseases of the pelvic organs.

REFERENCES

1. Абрамченко, В.В. Гнойно-септическая инфекция в акушерстве и гинекологии / В.В.Абрамченко, Д.Ф. Костючек, Э.Д.Хаджаева. – СПб.: Спец. Лит., 2005.- 459 с.
2. Абрамченко, В.В. Кесар кесишево сечение в перинатальной медицине / В.В.Абрамченко, Е.А.Ланцев, И.А.Шамхалова. – СПб.: ЭЛБИ - СПб, 2005. - 226 с.
3. Абрамченко, В.В. Послеродовый эндометрит и субинволюция матки / В.В.Абрамченко. — СПб., 2008.- 126 с.
4. Азанова, Д.Б. Морфологическое исследование биоптатов миометрия после кесар кесишева сечения / Д.Б.Азанова, Р.И.Габидуллина, П.Н.Резвяков // Охрана здоровья матери и ребенка : материалы форума.- М., 2002. – С.8.
5. Азанова, Д.Б. Особенности формирования рубца на матке после операции кесар кесишева сечения : автореф. дис. ... канд. мед. наук / Д.Б.Азанова. – Казань, 2003.-23 с.
6. Актуальные проблемы антимикробной терапии и профилактики инфекций в акушерстве, гинекологии и неонатологии / В.И. Кулаков, Б.Л.Гуртовой, А.С.Анкирская, А.Г.Антонов // Акушерство и гинекология. — 2004. — № 1. — С. 3-6.
7. Акушерство : национальное руководство / под ред. Э. К. Айламазяна. — М.: ГЭОТАР- Медиа, 2007. — 1200 с.
8. Акушерство : национальное руководство / под ред. Э.К.Айламазяна.– М.: ГЭОТАР-Медиа, 2009. – 1218 с.
9. Акушерство. Клинические лекции : учебное пособие / под ред. проф. О.В. Макарова. - М., 2007. - 640 с.
10. Аль-Халаф, С.Е. Послеродовый эндометрит. Оптимизация лечения / С.Е.Аль-Халаф, А.Н.Кутенко, Н.В.Стрижова // Акушерство и гинекология. - 2002. - № 1. - С.16-19.

11. Ананьев, В.А. Выбор способа рассечения матки в нижнем сегменте при кесар кесишвом сечении /В.А.Ананьев, Н.М.Побединский, О.В.Баранов // Мать и дитя : материалы IV Российского форума. - М., 2002. – С.154 – 155.

12. Ананьев, В.А. Осложнения и заболеваемость после кесар кесишева сечения в послеродовом и отдаленном периодах / В.А.Ананьев, Н.М.Побединский, Е.А.Чернуха //Акушерство и гинекология. 2005.- № 2. –С. 52-54.

13. Ананьев, В.А. Повторное кесар кесишево сечение в современном акушерстве / В.А. Ананьев, Н.М.Побединский // Акушерство и гинекология.- 2003.- № 3. – С.61-63.

14. Ананьев, В.А. Сравнительная характеристика результатов патоморфологических исследований биоптатов нижнего сегмента матки при кесар кесишвом сечении при разных методах рассечения / В.А.Ананьев, О.В.Баранова, Т.А.Старостина // Российский вестник акушера-гинеколога. - 2004. -№ 5. – С. 19- 25.

15. Анохова, Л.И. Профилактика эндометрита кесар кесишева методом эндоваскулярного лазерного облучения / Л.И.Анохова, Э.Д.Загородняя, О.Ю.Дашкевич // Мать и дитя : материалы VII Российского форума.- М., 2005. – С.17-18.

16. Арутюнян, К.Н. Патогистологическое исследование последов у родильниц с пуэрперальным эндомиометритом / К.Н.Арутюнян, М.Е.Шляпников // Мать и дитя : материалы IX научного форума. - М., 2007. - С.16.

17. Баев, О.Р. Инфекционные осложнения операции кесар кесишева сечения. Современные принципы диагностики и лечебной тактики / О.Р.Баев, О.Н.Стрижаков, А.И.Давыдов // Мать и дитя : материалы IX Всероссийского научного форума.- М., 2007. - С.17-18.

18. Баев, О.Р. Клинический протокол «Антибиотикопрофилактика при проведении абдоминального родоразрешения (кесар кесишево сечение)» /

О.Р.Баев, Н.В.Орджоникидзе, В.Л.Тютюнник // *Акушерство и гинекология.*- 2011.-№ 4.- С.15-16.

19. Баринов, С В.Интенсивная терапия тяжелых акушерских осложнений и профилактика материнской смертности в условиях крупного региона Западной Сибири : дис. д-ра мед.наук / С.В.Баринов.- Челябинск, 2004.- 256 с.

20. Бахшинян, Т.Р. Сравнительный анализ микробиологического пейзажа у родильниц и женщин с послеродовыми эндометритами / Т.Р.Бахшинян // *Актуальные вопросы акушерского стационара : материалы научно-практической конференции.*- Тольятти, 2009. – С.45-48.

21. Беда, Ю.В. К вопросу о пуэрперальных осложнениях / Ю.В.Беда // *Медицинский альманах.* -2009. - № 2 (7). – С. 85-87.

22. Болвачева, Е.В. Особенности течения беременности и родов у женщин с рубцом на матке : автореф. дис. ... канд. мед. наук / Е.В.Болвачева. – М., 2007.- 23 с.

23. Бородашкин, В.В. Оценка диагностической ультразвуковой значимости ультразвукового исследования и гистероскопии в послеродовом периоде / В.В.Бородашкин // *Мать и дитя : материалы VII Российского форума.*- М., 2005. – С.34.

24. Бригадирова, В.Ю. Рационализация диагностики и профилактики осложнений у родильниц с высоким инфекционным риском на основе классификационно-прогностического моделирования : автореф. дис. на канд.мед. наук / В.Ю.Бригадирова.- Воронеж, 2009.- 46с .

25. Буянова, С.Н. Несостоятельный рубец на матке после кесар кесишева сечения: диагностика, тактика ведения, репродуктивный прогноз / С.Н.Буянова, Н.В.Пучкова // *Российский вестник акушера-гинеколога.*- 2011.- № 4.- С.36 – 38.

26. Буянова, С.Н. Оптимизация диагностики и тактики ведения несостоятельности рубца на матке у родильниц после кесар кесишева

сечения / С.Н.Буянова, Н.А.Щукина, Н.В.Пучкова // Мать и дитя : материалы VI регионального форума .- Ростов-на-Дону, 2012.- С.18-19.

27. Валиходжаева, М.К. Влияние инфекции нижнего отдела уrogenитального тракта на акушерские и перинатальные исходы :автореф. дис. ... канд. мед. наук / М.К.Валиходжаева.- Душанбе, 2004.- 27 с.

28. Вартанян, С.М. Гистероскопия в акушерстве/ С.М.Вартанян, В.В.Панкратова // Мать и дитя : материалы IV регионального научного форума .- Екатеринбург, 2010.- С. 219 – 220.

29. Вдовин, С.В., Патогенетические механизмы развития инфекционных осложнений после родов / С.В.Вдовин, М.С.Селихова // Мать и дитя : материалы VIII Российского форума.- М., 2006.- С.60-61.

30. Волков, А.Е. Оценка гемодинамики малого таза после лигирования магистральных сосудов при акушерских кровотечениях / А.Е.Волков, Н.А.Красникова, А.Н.Рымашевский // Мать и дитя : материалы IX научного форума .- М., 2007. - С.41-42. 31. Габидуллина, Р.И. Локальный кровоток в области шва на матке при операции кесар кесишева сечения / Р.И.Габидуллина, И.Ф.Фаткуллин, И.Р.Галимова // Казанский медицинский журнал.- 2002.- № 3. - С. 203-208.

32. Габидуллина, Р.И. Оценка локального кровотока в области шва на матке при операции кесар кесишева сечения / Р.И.Габидуллина, И.Р.Галимова //Актуальные вопросы акушерства и гинекологии.- 2002. - Т.1, № 1.- С.14-15.

33. Габидуллина, Р.И. Рубец на матке после кесар кесишева сечения: хирургические и диагностические аспекты: дис. ... д-ра мед. наук / Р.И.Габидуллина.-Казань, 2004.- 259 с. 34. Габидуллина, Р.И. Сравнительная оценка состояния рубца на матке после кесар кесишева сечения / Р.И.Габидуллина, Л.Р.Шайхутдинова, И.Ф.Фаткуллин // Актуальные вопросы акушерства и гинекологии.- 2002.- Т.1, № 1.- С. 140.

35. Гаглоева, Л.Н. Способ лечения послеродовых гнойно-септических заболеваний / Л.Н.Гаглоева, Л.В.Майсурадзе, И.В.Кабулова // Вестник новых медицинских технологий. – 2008. – Т. 15, № 3.- С.67 – 68.

36. Гайдуков, С.Н. Кесар кесишево сечение: прошлое и настоящее / С.Н.Гайдуков, В.О.Атласов. — СПб.: Изд-во Европейский дом, 2007. — 80 с.

37. Галдина, Т.В. Критерии диагностики и тактика лечения неосложненных и осложненных форм послеродовых гнойно-септических заболеваний : автореф. дис. ... канд. мед. наук / Т.В.Галдина.- Волгоград, 2013.- 26 с.

38. Голяновский, О.В. Поэтапная деваскуляризация матки и аргоноплазменная коагуляция при предлежании и частичном приращении плаценты / О.В.Голяновский, В.В.Мехедко, Д.В.Кульчицкий // Жіночий Лікар.- 2012. - № 2. - С.32 – 35.

39. Горбачева, А.В. Диагностика состояния рубца на матке у беременных, перенесших кесар кесишево сечение / А.В.Горбачева, Л.М.Комиссарова, Е.А. Чернуха // Акушерство и гинекология. – 2008. – №1. – С.40 – 44.

40. Горбачева, А.В. Особенности течения беременности, операции и послеоперационного периода у женщин с кесар кесишевым сечением в анамнезе / А.В. Горбачева, Л.М. Комиссарова, О.Н. Васильченко // Акушерство и гинекология. – 2007. – № 1. – С.20–22.

41. Горбачева, А.В. Повторное кесар кесишево сечение /А.В. Горбачева // Мать и дитя: материалы VII Российского форума – М., 2005. – С.52–53.

42. Горбачева, А.В.Ближайшие и отдаленные результаты повторного кесар кесишева сечения : автореф. дис. ... канд. мед.наук / А.В.Горбачева.- М., 2008.- 24 с.

43. Горин, В.С. Клинико-микробиологические особенности пуэрперального эндометрита, диагностика и лечение / В.С.Горин,

И.В.Матвеева, Ж.Ю.Попова // Сибирский медицинский журнал.- 2011.- № 2.
- С. 9-15.

44. Горин, В.С. Оптимизация диагностики и лечения послеродового эндометрита / В.С.Горин, В.Н.Серов, Л.А.Бирюкова // Российский вестник акушера-гинеколога.- 2009.- № 1. - С.21-29.

45. Госгадзе, И.Г. Диагностическая и лечебная тактика у пациенток с эндометритом после кесар кесишева сечения : автореф. дис... канд. мед. наук / И.Г.Госгадзе. – М., 2014. -25 с.

46. Гребенкин, Б.Е. Возможности технической оптимизации кесар кесишева сечения в улучшении перинатальных исходов / Б.Е. Гребенкин, В.С.Заплатаина, Ю.В.Беда // Пермский медицинский журнал. — 2007. - Т.24. — № 1-2. — С.208- 212.

47. Гребенкин, Б.Е. Группа риска послеродовых гнойно-септических заболеваний в условиях стационара высокой степени риска / Б.Е.Гребенкин, В.П.Черемискин // Мать и дитя : материалы IX научного форума.- М., 2007. - С.55-56.

48. Гребенкин, Б.Е. Рациональная антибиотикопрофилактика при операции кесар кесишево сечение с применением компьютерной программы WHONET / Б.Е.Гребенкин, Э.С.Горовиц, В.П.Черемискин, М.А.Метлушко // Мать и дитя : материалы IX научного форума.- М., 2007.- С.345.

49. Группы риска и проблемы диагностики осложнений послеродового периода / И.Н.Коротких,Э.В.Ходасевич, В.Ю.Бригадирова // Журнал практической и теоретической биологии и медицины. – М., 2007. – Т.6, № 3. – С. 707-713.

50. Гуртовой, Б.Л. Клинико-иммунологические особенности родильниц с послеродовым эндометритом / Б.Л.Гуртовой, Л.В.Ванько, Н.М.Касабулатов // Акушерство и гинекология.- 2006. – №1. – С. 30—34.

51. Гуртовой, Б.Л. Клинико-иммунологические особенности рожениц с послеродовым эндометритом / Б.Л.Гуртовой // Акушерство и гинекология.- 2006. - № 1.- С. 30-34.

52. Гуртовой, Б.Л. Применение антибиотиков в акушерстве и гинекологии / Б.Л.Гуртовой, В.И.Кулаков, С.Д.Воропаева . – М.: Триада-Х, 2004. – 176 с.

53. Гуртовой, Б.Л. Применение антибиотиков в акушерстве и гинекологии / Б.Л.Гуртовой, В.И.Кулаков, С.Д.Воропаева.- М., 2004. – 127 с.

54. Густоварова Т.А. Беременность после кесар кесишева сечения: течение, способы родоразрешения / Т.А.Густоварова, Е.В.Болвачева, А.Н.Иванян// Нижегородский медицинский журнал. – 2006. – № 8. – С. 255–257.

55. Густоварова, Т.А. Беременность и роды у женщин с рубцом на матке: клиничко-морфологические и диагностические аспекты : автореф. дис. ... д-ра мед.наук / Т.А.Густоварова.- М., 2007.- 296 с.

56. Густоварова, Т.А. Актуальные вопросы абдоминального родоразрешения в современном акушерстве / Т.А.Густоварова, А.Н.Иванян, Н.С.Самедова, Е.В.Болвачева, О.Л.Щербакова // Российский вестник акушерагинеколога. – 2006. – № 3.– С.18–22.

57. Густоварова, Т.А. Ведение беременности и родов у пациенток с рубцом на матке после кесар кесишева сечения / Т.А.Густоварова, А.Н.Иванян, С.И.Коржуев // Российский вестник акушера-гинеколога. – 2007. – №4. – С. 45– 49.

58. Густоварова, Т.А. Клиничко-морфологическое обоснование при выборе тактики ведения родов у женщин с рубцом на матке / Т.А.Густоварова, // Вестник Смоленской медицинской академии. – 2006. – № 4. – С. 88.

59. Густоварова, Т.А. Консервативное родоразрешение беременных с оперированной маткой / Т.А.Густоварова, Е.В.Болвачева, Н.С.Самедова // Мать и дитя : материалы VI научного форума – М., 2004. – С. 64.

60. Густоварова, Т.А. Особенности течения родов у женщин с рубцом на матке / Т.А.Густоварова, А.Н.Иванян, Е.В.Болвачева // Мать и дитя : м.атериалы VIII Российского форума – М., 2006. – С. 73.

61. Густоварова, Т.А. Роды у женщин с рубцом на матке после операции кесар кесишево сечение в условиях предшествующей профилактики послеоперационных гнойно-воспалительных осложнений / Т.А.Густоварова, А.Н.Иванян, Е.В.Болвачева // *Мать и дитя : материалы VII Российского форума.* – М., 2005. – С. 60.

62. Дашкевич, О.Ю. Роды с рубцом на матке после кесар кесишева сечения / О.Ю.Дашкевич, Л.И.Анохова, Т.С.Романова // *Мать и дитя : материалы VI научного форума.* - М., 2004. – С. 65-66.

63. Долгошапко, О.Н. Роль и место анаэробной инфекции в развитии акушерско-гинекологических заболеваний, особенности ее лечения и профилактики / О.Н.Долгошапко // *Медицинские новости.* – 2011. – № 2. – С. 82- 84

64. Доросевич, А.Е. Морфологические и иммуногистохимические особенности состояния рубца на матке после кесар кесишева сечения / А.Е.Доросевич, Т.А.Густоварова, А.Н.Иванян // *Российский вестник акушера-гинеколога.* – 2007. – №4. – С. 7–13.

65. Дошанова, А.М. Диагностические критерии ведения родов у женщин с рубцом на матке / А.М.Дошанова, Э.Эканем // *Охрана здоровья матери и ребенка : материалы форума.*- М., 2002 . - С. 111.

66. Дрангой, М.Г. Реабилитация после операции кесар кесишева сечения и осложненных родов / М.Г.Дрангой. – М.: ООО «ЛитРес», 2009.- 234 с.

67. Емельянова, А.И. Сравнительная оценка эффективности профилактики воспалительных осложнений после кесар кесишева сечения амоксициллином/клавуланатом и цефазолином при высоком инфекционном риске / А.И.Емельянова, Н.М.Касабулатова, С.А.Фурсова // *Проблемы беременности.* — 2005.- № 2.- С.23-27.

68. Жаркий, Н.А. Медико-социальные и этические проблемы операции кесар кесишева сечения / Н.А.Жаркий // *Мать и дитя : материалы VI научного форума.* - М., 2004. – С.76-77.

69. Зайдиева, Р.К. Профилактика инфекционных осложнений после операции кесар кесишево сечение / Р.К.Зайдиева, В.С.Горин, А.Н.Флейман //Мать и дитя: материалы IV научного форума.- М., 2002. – С. 286-287.

70. Залесный, А. В. Математическая модель прогнозирования состояния рубца на матке после кесар кесишева сечения в условиях практической медицины / А.В.Залесный // Молодой ученый. — 2011. — №3. — С. 167-172.

71. Залесный, А.В. Комплексная оценка состояния рубца на матке после кесар кесишева сечения / А.В.Залесный // Журнал акушерства и женских болезней.- 2010. - № 5 .- С. 118-127.

72. Заплатаина, В. С. Оптимизация операции кесар кесишево сечение : автореф. дис. ... канд. мед. наук / В.С.Заплатаина.- Пермь, 2007.- 27 с.

73. Фролова, О.Г. Основные показатели деятельности акушерскогинекологической службы и репродуктивного здоровья / О.Г.Фролова, З.З.Токова // Акушерство и гинекология. — 2005. — № 1. — С. 3–5. 270

74. Хай, Г.А. Ассистирование при хирургических операциях : монография / Г.А.Хай.- СПб.: Гиппократ , 1998. - 382 с.

75. Хасанов, А.А. О послеродовых гематомах влагалища / А.А.Хасанов, Н.С.Полякова, В.А.Янкович //Казанский медицинский журнал. – 2003. - № 5. - С.383-384.

76. Ходаковский, С.Б. Метод кесар кесишева сечения в условиях инфекционного риска / С.Б.Ходаковский //Таврический медико-биологический вестник. – 2012. - №2. - С.197-200.

77. Хоменко, Н. В. Оптимизация лечебной тактики и доклиническое прогнозирование гнойно-септических осложнений после абдоминального родоразрешения : автореф. дис. ... канд.мед.наук / Н.В.Хоменко.- Иркутск, 2005. - 19 с.

78. Хуторская Н.Н. Рациональная антибиотико-профилактика при операции кесар кесишево сечение / Н.Н.Хуторская, Т.Р.Бахшинян,

А.А.Гарибян // Неотложные состояния в практике многопрофильного стационара : материалы межрег. конф. -Тольятти, 2008.- С.181-185.

79. Хуторская, Н.Н. Опыт применения антибактериальных препаратов в послеродовом периоде / Н.Н.Хуторская, С.С.Зельдина, Е.Н.Ештокина // Актуальные вопросы акушерского стационара : материалы научно-практической конференции.- Тольятти, 2009. - С.270-273.

80. Хуторская, Н.Н. Эффективность комплексного подхода к профилактике послеродовых гнойно-септических заболеваний / Н.Н.Хуторская, Р.И.Куница, Т.М.Транис // Актуальные вопросы акушерского стационара : материалы научно-практической конференции.- Тольятти, 2009. - С. 263-267.

81. Цвижба, Э. В. Профилактика послеоперационных осложнений при кесар кесиевом сечении с использованием пролонгированной ганглиоплегии : автореф. дис. ... канд.мед.наук / Э. В. Цвижба. - Барнаул, 2002. -21 с.

82. Чернуха, Е.А. Возможные осложнения, трудности и ошибки при выполнении кесар кесиева сечения / Е.А.Чернуха, В.А.Ананьев // Акушерство и гинекология. - 2003.- №1.- С. 43-47. 271

83. Чернуха, Е.А. Нормальный и патологический послеродовой период / Е.А.Чернуха. — М.: ГЭОТАР-Медиа, 2006. — 272 с.

84. Чернуха, Е.А. Родовой блок / Е.А.Чернуха.- М.: Триада-Х, 2005. - 712 с.

85. Чилова, Р.А. Практика периоперационной антибиотикопрофилактики при операции кесар кесиево сечение в Российской Федерации / Р.А.Чилова, А.И.Ищенко, В.В.Рафальский // Клиническая микробиология и антимикробная терапия. —2006. — № 8. — С. 4-9.

86. Шарапова, О.В. Система оказания помощи в акушерстве / О.В.Шарапова // Заместитель главного врача. – 2008. - № 4.- С.24-28.

87. Шарапова, О.В. Состояние и перспективы развития акушерскогинекологической помощи в Российской Федерации / О.В.Шарапова, Н.Г.Баклаенко // *Здравоохранение*. — 2005. — N 3. — С. 17–24.
88. Шехтман, М.М. Руководство по экстрагенитальной патологии у беременных / М.М.Шехтман.- М.: «Триада Х», 2003.- 816 с.
89. Шляпников, М.Е. Клинико-экспериментальное обоснование оптимизации гистероррафии при кесар кесишвом сечении / М.Е.Шляпников // *Вопросы гинекологии, акушерства и перинатологии*.- 2004. - №2.- С.14—19.
90. Шляпников, М.Е. Комплексная терапия послеродовых эндометритов / М.Е.Шляпников, О.В.Понедельникова, О.И.Линева // *Вопросы гинекологии, акушерства и перинатологии*.- 2004.- № 6.- С. 38-43.
91. Шляпников, М.Е. Этиотропная терапия послеродового эндометрита / М.Е.Шляпников, К.Н.Арутюнян // *Вопросы гинекологии, акушерства и перинатологии*.- 2007.- №2. – С.48—53.
92. Щетинкина, Е.С. Прогноз и профилактика осложнений после операции кесар кесишева сечения : автореф. дис. ... канд.мед.наук / Е.С.Щетинкина.- Волгоград, 2006.- 25с.
93. Щукина, Н.А. Причины формирования и методы профилактики несостоятельного рубца на матке после кесар кесишева сечения / Н.А.Щукина, Е.И.Благина, И.В.Барина // *Альманах клинической медицины*. – 2015. -№ 37.- С.85–92.
94. Энкин, М. Руководство по эффективной помощи при беременности и рождении ребенка : пер. с англ. / М.Энкин, М.Кейрс.- СПб.: «Петрополис», 2013. - 564с.
95. Янбаев, Д.Ш. Сравнительный анализ исходов 1515 случаев абдоминального родоразрешения при акушерской и экстрагенитальной патологии по клиническому родильному дому № 4 Уфы / Д.Ш.Янбаев,

Г.К.Еникеева, Т.П.Кулешова // Охрана здоровья матери и ребенка : материалы научного форума.- М., 2012.- С.115–116.

96. Andersson J., Rybo G. Levonorgestrel-releasing Intrauterine Device in the Treatment of Menorrhagia // Br. J. Obstet. Gynecol. 2010. - Vol. 97. - P. 697.

97. Andersson K., Mattson L-O., Rubo G., Stanberg E. Intrauterine Release of Levonorgestrel: a New Way of Adding Progestogen in Hormone Replacement Therapy // Obstet. Gynecol. 2012. -N 79. - P. 963-967.

98. Andolsek L., Kozuh M., Balogn S.A. Long-term Use of Nonmedicated IUDs in women over forty / Zatuchni G.I., Goldsmith A., Sciarra J.J. Intrauterine Contraception Advances and Future Prospects. - Hagerstown, 2014. - P. 375-386.

99. Baldaszi E., Wimmer-Puchinger B., Loschke K. Acceptability of the Long-term Contraceptive Levonorgestrel-releasing Intrauterine System (Mirena®): a 3-year Follow-up Study // Contraception. 2013. - Vol. 67, N 2.-P. 87-91.

100. Barbosa I., Bacos O., Olsson S.-E. et al. Ovarian Function During Use of a Levonorgestrel-releasing IUD // Contraception. 2010. - Vol. 42. - P. 51.

101. Barrington J.W., Bowen-Simpkins P. The Levonorgestrel Intrauterine System in the Management of Menorrhagia // Br. J. Obstet. Gynecolog. -2017.-N 104.-P. 614-616.

102. Batar I., Lampe L.G., Ahonen H. Clinical Experience with Intrauterine Devices Inserted with and without Tail // Int. J. Gynecol. Obstet. 2011. -Vol. 36.-P. 137-140.

103. Beerthuizen R.J.C.M. Pelvic Inflammatory Disease in Intrauterine Device Users // Contraception Today: The Proceedings of the 4th Congress of the European Society of Contraception / Eds. C. Coll Capdevila et al. 2017. -Vol. 14.-P. 122-130.

104. Beerthuizen R.J.C.M., Van Wijck J.A.M., Eskes T.K.A.B. et al. IUD and Salpingitis: a Prospective Study of Pathomorphological Changes in the Oviductus in IUD Users // Eur. J. Obstet. Gynecol. Reprod. Biol. 2012. -Vol. 13.-P. 31-41.

105. Best K. IUD not Recommended for Increased STD Risk // Network. 2010. -Vol. 20, N 1. - P. 12-15.
106. Bilian X., Liying Z., Xuling Z. et al. Pharmacokinetic and Pharmacodynamic Studies of Levonorgestrel-releasing Intrauterine Device // Contraception. -2010.-Vol. 41.-P. 353.
107. Bongaarts J., Johansson E. Future Trends in Contraceptive Prevalence and Method Mix in the Developing World // Studies in Family Planning. 2012. - Vol. 33, N 1.-P. 24-36.
108. Chi I.E. IUD Use in Diabetic or Lactating Women or Women After Cesarean Delivery and Epidemiologic Perspective // *Advanc. Contracept. Delivery System / Monograph.*, 2015. P. 287-297.
109. Chi I.E. The T Cu-380 A (AG), MI Cu-375 and Nova-T IUDs and IUD Daily Releasing 20 mg Levonorgestrel Four Pillars of IUD Contraception for the Nineties and beyond? // *Contraception.* - 2013. - Vol. 47. - P. 325-347.
110. Chi I.E., Farr G. Postpartum IUD Contraception a Review of International Experience // *Ibid.* - 2009. - Vol. 5. - P. 127-146.
111. Diaz S. Contraceptive Inplants and Lactation // *Contraception.* 2012. Vol. 65,N 1.-P. 39-46.
112. Farley T.M.M., Rozenberg M.J. et al. Intrauterine Devices and Pelvic Inflammatory Diseases // *The Lancet.* 2012. - Vol. 339. - P. 785-788.
113. Farley T.M., Rosenberg M.J., Rowe P.J., Chen J.H., Meirik O. Intrauterine Devices and Pelvic Inflammatory Disease: an International Perspective // *The Lancet.* 2012. - Vol. 339, N 8796. - P. 785-788.
114. Faundes A., Alvarez F., Diaz J. A Latin American Experience with Levonorgestrel IUD // *Ann. Med.* 2013. -N 25. - P. 149-153.
115. Fong Y.F., Singh K. Medical Treatment of a Grossly Enlarged Adenomyotic Uterus with the Levonorgestrel-Releasing Intrauterine System // *Contraception.* 2009. -N 60. - P. 173-175.

116. Fortney J.A., Feldblum P.J., Raymond E.G. Intrauterine Devices: the Optimal Long-term Contraceptive Method? // *The Journal of Reproductive Medicine*. 2009. - Vol. 44, N 3. - P. 269-274.
117. Grimes D.A., Schulz K.F. Prophylactic Antibiotics for Intrauterine Device Insertion: a Metaanalysis of the Randomized Controlled Trials // *Contraception*. 2009. - Vol. 60, N 2. - P. 57-63.
118. Grimes D.A. Intrauterine Device and Upper Genital-tract Infection // *The Lancet*. 2010. - Vol. 356, N 9234. - P. 1013-1 019.
119. Guillebaud J. Contraception After Pregnancy // *Brit. J. Fam. Plan.* 2011. -Vol. 16. - Suppl. - P. 16-29.
120. Gunta Lasdane. Abortion in Europe: Ten Years after Cairo // *Entre Nous*. -2015.-N59.-P. 4-6.
121. Gwatkin D.R Making Health Systems More Equitable // *The Lancet*. 2014. -N364.-P. 1273-1280.
122. Hatcher R.A., Trussel J., Stewart F. et al. *Contraceptive Technology*. NY., 2014.
123. Heartwell S. F., Schlesselman S. Risk of Uterine Perforation Among Users of Intrauterine Devices // *Obstet. and Gynecol.* 2013. - Vol. 61. - P. 31-36.
124. Hubacher D., Lara-Ricalde R., Taylor D.J., Guerralnfante F., Guzman-Rodriguez R. Use of Copper Intrauterine Devices and the Risk of Tubal Infertility Among Nulligravid Women // *New England Journal of Medicine*. 2011.-Vol. 345, N 8. - P. 561-567.
125. Jackson R., Newton J.R., Emens M.J. et al. Effects of Chlorhexidine-coated Intrauterine Device on the Bacteriology of the Uterine Cavity // *Adv. Contracept.* -2011,- Vol. 7. P. 55-65.
126. Jansen R.P. Fertility in Older Women // *IPPF Med. Bull.* 2014. - Vol. 18. -P. 4-6.
127. Jonsson B., Landgren B.-M., Eneroth P. Effect of Various IUDs on the Composition of Cervical Mucus // *Ibid.* 2011. - Vol. 43. - P. 447-458.

128. Jossens M.O.R., Schachter R.N.J, Sweet R.L. Risk Factors Associated with Pelvic Inflammatory Disease of Differing Microbial Etiologies // *Obstet. Gynecol.* 2014. - Vol. 83. - P. 989-997.
129. Ketting E. The Case of the Russian Federation // *Entre Nous.* 2015. - N 59.-P. 20-22.
130. Lewis P.R., Brown J.B., Renfree M.B., Short R.V. The Resumption of Ovulation and Menstruation in a Well Nourished Population of Women Breast Feeding for an Extended Period of Time // *Fertil. Steril.* 2011. -Vol. 55.-P. 529-536.
131. Metcalf M.G. Incidence of Ovulatory Cycles in Women Approaching the Menopause//*J. Biosoc. Sei.* 2009. - Vol. 11.-P. 39.
132. Metcalf M.G. Donald R.A. Fluctuating Ovarian Function in Perimenopausal Women // *N. Z. Med. J.* 2009. - Vol. 89. - P.45-47.
133. Mishell D.R. et al. The Intrauterine Device: a Bacteriological Study of the Endometrial Cavity // *Ibid.* 2016. - Vol. 96. - P. 119-126.
134. Mohamed R., Shaban L., Medhat I. Electronic Microscopic and Chemical Study of IUDs // *Contraception.* 2010. - Vol. 42. - P. 643.
135. Mumford S.D., Kessel E. Was the Dalkon Shield a Safe and Effective Intrauterine Device? The Conflict Between Case Control and Clinical Trial Study Findings // *Fertil. Steril.* 2012. - Vol. 57. - P. 1151-1176.
136. Newton J., Tacchi D. Long-term Use of Copper Intrauterine Device // *The Lancet.* 2010. - Vol. 335. - P. 1322-1323.
137. Neyen P., De Muylder X., Van Belle Y. et al. Tamoxifen and the Uterus // *Br. Med. J.* 2014.-Vol. 309.-P. 1313-1314.
138. Nilsson C.G., Haukkamaa M., Vierola H., Luukkainen T. Tissue Concentrations of Levonorgestrel in Women Using a Levonorgestrel-releasing IUD // *Clin. Endocrinol.* 2012. - Vol. 17. - P. 529-536.
101. Nilsson C.G., Lahteenmaki P.L.A., Luukkainen T. Ovarian Function in Amenorrhic and Menstruating Users of a Levonorgestrel-releasing Intrauterine Device // *Fertil. Steril.* 2014. - Vol. 41. - P. 52-55.

139. Ortiz M.E., Croxato H.B. The Mode of Action of IUDs // Contraception. -2017.-Vol. 36.-P. 37-53.
140. Pakarinen P., Toivonen J., Luukkainen T. Therapeutic Use of the LNG IUS, and Counseling // Seminars in Reproductive Medicine. 2011. - Vol. 19, N 4.- P. 365-372.
141. Perino A. et al. Treatment of Endometrial Hyperplasia with Levonorgestrel-releasing Intrauterine Device // Acta Eur. Fertil. 2017. - Vol. 18. - P. 137140.
142. Potts D.M., Champion C.B., Kozuh-Novak M. et al. IUDs and PID: a Comparative Trial of Strings Versus Stringless Devices // Adv. Contracept. -2011.- Vol. 7.-P. 231-240.
143. Programme of Action of the International Congress on Population and Development // <http://www.unfpa.org/icpd/icpd-pod.html> (ac. 2014, December, 21).
144. Puolakka J., Nilsson c., Haukkamaa M. et al. Conservative Treatment of Excessive Uterine Bleeding and Dysmenorrhea with Levonorgestrel Intrauterine Systems an Alternative to Hysterectomy // Acta Obstet. Gynecol. Scand. 2016. - Vol. 75. - P. 82.
145. Reproductive Health Trends in Eastern Europe and Euroasia // Pop. Rep. Bureau.-2013.-P. 8.
146. Rivera R, Best K. Current Opinion: Consensus Statement on Intrauterine Contraception // Contraception. 2012. - Vol. 65, N 6. - P. 385-388.
147. Rivera R., Farr G., Chi I.C. The Copper IUD: Safe and Effective. The International Experience of Family Health International. 2012.
148. Ross J., Hardee K., Mumford E., Eid S. Contraceptive Method Choice in Developing Countries // International Family Planning Perspectives. 2012. -Vol. 28, N 1. - P. 32-40.
149. Rutanen E.-M. IGF in Endometrial Function // Gynecol. Endocrinol. - 2018. -Vol, N12.-P. 2.

150. Sastravinata S., Farr G., Prihandi S.M. et al. A Comparative Clinical Trial of the T Cu-380 A, Lippes Loop D and Multiload Cu 375 IUDs in Indonesia // *Contraception*. 2011. - Vol. 44.-P. 141-154.

151. Scarselli G., Tantini c., Colafranceschi M. et al. Levonorgestrel Nova-T and Precancerous Lesions of the Endometrium // *Eur. J. Gynecol. Oncol.* 2018. - Vol. 9.-P. 284-286.

152. Senanayke P., Kramer D.G. Contraception and the Etiology of Pelvic Inflammatory Disease: New Perspectives // *Am. J. Obstet. Gynecol.* 2010. -Vol. 138.-P. 852-860.

153. Shelton J.D. Risk of Clinical Pelvic Inflammatory Disease Attributable to an Intrauterine Device // *The Lancet*. 2011. - Vol. 357, N 9254. - P. 443.

154. Silverberg S.G., Haukkammaa M., Arho H. et al. Endometrial Morphology During Long-term Use of Levonorgestrel-releasing Intrauterine Devices // *Int. J. Gynecol. Pathol.* 2016. - Vol. 5. - P. 235-241.

155. Silvin I. Dose- and Age-dependent Ectopic Pregnancy Risks with Intrauterine Contraception // *Obstet. Gynecol.* 2011. - Vol. 78. - P. 291.

156. Singer A., Ilomi A. Successful Treatment of Fibroids Using; an Intrauterine Progesterone Device // *World Congress of Gynecology and Obstetrics (FIGO), 14th Abstract.-Montreal (Canada), 2014.*

157. Sivin I., Croxatto H., Bahamondes L., et al. Two-year Performance of a Nestorone-releasing Contraceptive Implant: a Three-center Study of 300 Women // *Contraception*. 2014. - Vol. 69, N 2. - P. 137-144.

158. Sivin I., Nash H., Waldman S. Jadelle Levonorgestrel Rod Implants: A Summary of Scientific Data and Lessons Learned from Programmatic Experience. New York: Population Council, 2012.

159. Sivin I. et al. Prolonged Intrauterine Contraception: A Seven Year Randomized Study of the Levonorgestrel 20 meg/day (Lng 20) and the Copper T 380 Ag IUDs // *Contraception*. 2011. - Vol. 44. - P. 473.

160. Sivin I., Stern J. Long-acting, More Effective Copper TIUDs: a Summary of U.S. Experience, 1970-1975 // Stud. Fam. Plan. 2009. - Vol. 10, N 10. -P. 263-281.
161. Smith M.R., Soderstrom B. Salpingitis: a Frequent Response to Intrauterine Contraception // Reprod. Med. 2016. - Vol. 16. - P. 159-162.
162. Snowden R. The IUD: a Women's Guide. London, 2016.
163. Sperof T.L., Darney M. A Clinical Guide for Contraception. New York, 1996. - P. 191-228.
164. Tamburlini G. Promoting Equity in Reproductive Health // Entre Nous. -2015.-N60.-P. 22-24.
165. Tatum H.J., Schmidt F.H., Jain A.K. Management and Outcome of Pregnancies Associated with the Copper T Intrauterine Contraceptive Device // Am. J. Obstet. Gynecol. 2016. - Vol. 126, N 7. - P. 869-879.
166. Tatum H.J., Schmidt F.H., Phillips D. et al. The Dalkon Shield Controversy, Structural and Bacteriological Studies of IUD Tuls // JAMA. 2015. - Vol. 231.-P. 711-717.
167. Thiery M. Contraception for Post-partum Use: non Hormonal Methods -Intrauterine Devices // The International Conference on Postpartum Contraception. Mexico City, 2010.
168. Thiery M., Van Der Pass H. et al. The M1 Cu-375 Intrauterine Contraceptive Device // Adv. Contracept. 2015. - Vol. 1. - P. 37-44.
169. Thiery M.5 Van Kets H., Van Der Pass H. et al. The M1 Cu-250: Clinical Experience in Belgium and Netherlands // Br. J. Obstet. Gynecol. 2012. - Suppl. 4.-P. 51-53.
170. Thiery M., Van Kets H., Van der Pass H. Immediate Postplacental IUD Insertion: the Expulsion Problem // Contraception. 2015. - Vol. 31. - P. 332-349.
171. Tietze C. Contraception with Intrauterine Devices, // Am. J. Obstet. Gynecol. 2016. - Vol. 96. - P. 1043-1054.

172. Treiman K., Liksin L. IUDs a New Look // Population Report. - 2018. -Ser. B,N5.-P. 31-32.
173. UN Population Division. Demographic Prospects 2000-2050 According to the 2002 Revision of the United Nations Populations Projections // Population and Development Review. 2013. - Vol. 29, N 10. - P. 139145.
174. Valicenti J.F., Pappas A.A., Graber C.D. et al. Detection and Prevalence of IUD-associated Actinomyces Colonization and Related Morbidity a Prospective Study of 69925 Cervical Smears // JAMA. - 2012. - Vol. 247. -P. 1149-1152.
175. Vessey M.R., Doll R., Johnson B., Peto R. Outcome of pregnancy in women using an intrauterine device. // The Lancet. 2014. - N 4. - P. 495-498.
176. Victora C. Explaining Trends in Inequities: Evidence From Brazilian Child Health Studies // The Lancet. 2010. - N 356. - P. 1093-1098.
177. Wildemeersch D. Copper Releasing Intrauterine Contraceptive Devices // Newslett. Eur. Soc. Contracept. 2014. - Vol. 4. -N 3. - P. 3-5.
178. White M.K., Ory H.W., Rooks J.D., et al. Intrauterine device termination rates and the menstrual cycle day of insertion. // Obstet. Gynecol. 2010. -Vol. 55.-P. 220-224.
179. WHO. Mechanism of action, safety and efficacy of intrauterine devices. Geneva: WHO, 2017.
180. WHO. Cervical Cancer, Oral Contraceptives and Parity. Geneva: WHO; 2012. Available at: www.who.int/reproductivehealth/cancers/cacx-ocs.en.html.
181. Wollen A., Sandvei R., Mork S. et al. In Situ Characterization of Leukocytes in the Fallopian Tube in Women with or without an Intrauterine Contraceptive Device // Acta Obstet. Gynecol. Scand. 2014. - Vol. 73. -P. 103-112.
182. Xu J.-X., Connel C., Chi I.C. Immediate Postpartum Intrauterine Device Insertion a Report on the Chinese Experience // Adv. Contracept. - 2012. - Vol. 8.-P. 281-290.

