

BIRTH CONTROL PILLS AND POSSIBLE INFLUENCES ON THE FETUS

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Abstract

Birth control pills are widely used around the world for birth control and prevention of unwanted pregnancy. However, there are concerns about their safety during pregnancy and possible effects on the fetus. This article aims to examine in depth the current evidence on the impact of birth control on the foetus. By analysing the mechanism of action of birth control pills, relevant clinical trials and associated potential complications, the risks and safety of contraceptive use during pregnancy are explored. The different types of contraceptives and the specific risks associated with each are discussed, providing recommendations for women who use birth control and become or become pregnant. Through this literature review, the aim is to provide a clearer understanding of this topic and to provide practical guidance for healthcare professionals and women in this situation. Further investigation into the mechanisms of action of birth control pills during pregnancy and how they may influence fetal development could provide useful information for managing and counseling women who are pregnant or planning to become pregnant.

Key words: birth control pills, pregnancy, adverse effects, mechanism of action, risks and complications.

Introduction

Birth control pills are a crucial tool in birth control and family planning management around the world. However, despite their obvious benefits, there are concerns about their safety in women who become or become pregnant while using them. In particular, concerns focus on possible effects on the foetus and risks associated with contraceptive use during pregnancy. [1-4]

The purpose of the article is to examine and evaluate current evidence on the impact of birth control on the foetus. By presenting and analysing the mechanism of action of birth control pills, relevant clinical trials and associated potential complications, this article aims to provide a deeper and clearer understanding of the risks and safety of contraceptive use during pregnancy. [1-3]

The use of contraceptives during pregnancy can pose potential risks and complications, and decisions about their use during this period must be carefully evaluated against the individual benefits and risks of each woman. [2-4]

Controlled clinical trials in this area are rare, and most evidence comes from observations and case reports. However, available data suggest that contraceptive use during pregnancy is not generally associated with an increased risk of birth defects or other major complications in the foetus. [1-4]

It is also important the mode of action of the contraceptive encapsulation systems and the retarded release capacity of these contraceptives [5], in the oral rehabilitation of pregnant women can be used transdermal systems with different anti-inflammatory and anticabterian loads,

mentioning that these loads are harmless and do not create a cumulation factor compared to birth control pills [6-11].

Birth control pills can also have various side effects, and one of the less discussed effects is their influence on salivary flow which must be differentiated from Sjögren's syndrome, a series of clinical and laboratory investigations can be made for this purpose [12,13], by deed, another side effect that can occur is increased predisposition to fungal infections, such as oral candidiasis. [14]

The mechanism of action of contraceptives

Birth control pills are designed to prevent pregnancy by interfering with the physiological processes involved in conception and implantation of an embryo. There are two main types of contraceptives: oral contraceptives (birth control pills) and non-oral contraceptives (such as contraceptive patches, vaginal ring, contraceptive injections, implants and intrauterine devices). Each of these types of birth control pills uses different mechanisms to prevent pregnancy, but their main mode of action is to prevent ovulation, fertilization or implantation of the fertilized egg. [2-4]

Oral contraceptives (birth control pills) contain a combination of the hormones estrogen and synthetic progesterone. The hormones in the birth control pill inhibit the release of follicle-stimulating hormones (FSH) and

luteinizing hormone (LH) from the pituitary gland, thereby preventing ovulation. It also changes the consistency of cervical mucus to make it harder for sperm to move up the female genital tract and reduces the chances of fertilization of the egg. [2-4]

Non-oral contraceptives may contain either the hormones estrogen and progesterone, or synthetic progesterone alone. The mechanism of action may be similar to that of birth control pills, by inhibiting ovulation and altering cervical mucus. [3,4,15]

Some non-oral contraceptives, such as intrauterine devices (IUDs), may work by creating a hostile environment for sperm in the uterus or by preventing the embryo from implanting into the uterine wall. [3,15]

By using these mechanisms, birth control pills significantly reduce the chances of conception during correct and continuous use. However, the contraceptive method is not 100% effective, and the risk of pregnancy may exist in certain circumstances, such as incorrect use of the method or interactions with other drugs [2-4].

Different contraceptive options

There are several contraceptive options available for women, including oral contraceptive pill, intrauterine devices (IUDs), contraceptive implant, injectable contraceptives, hormone IUDs, emergency contraceptives (morning-after pill). [15,16]

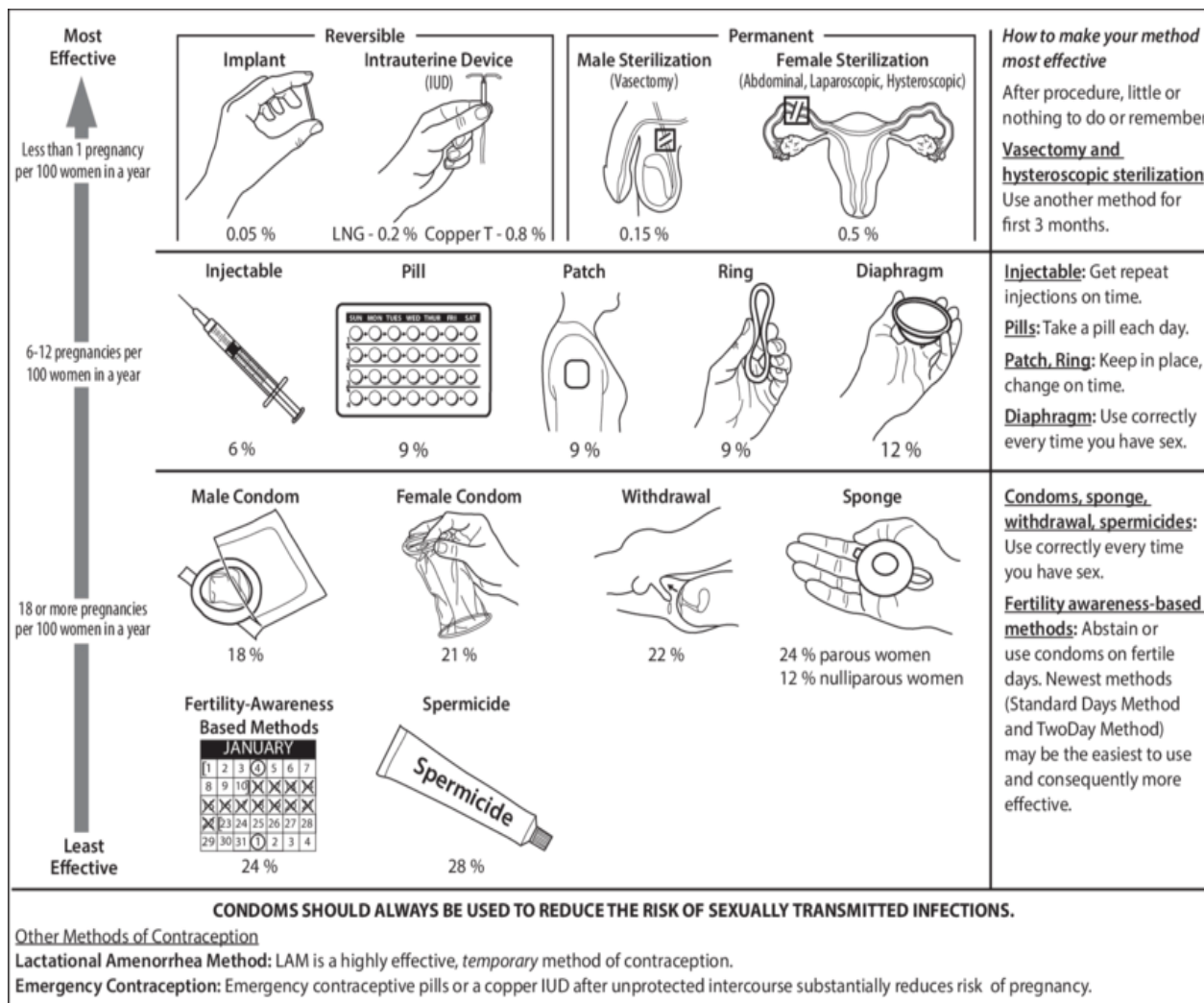


Fig.1 Methods of contraception. [16]

There are two main types of birth control pills: combined and low-dose progesterone. The combination pill contains a combination of estrogen and progesterone and should be taken every day at the same time. The low-dose progesterone pill contains only progesterone and may be more suitable for women who cannot use estrogen. The effectiveness of the oral contraceptive pill depends on taking it regularly and correctly. [15-16]

Intrauterine devices (IUDs) are represented by two main types: copper and hormone. The copper IUD is a non-hormonal device that prevents pregnancy by releasing substances that affect sperm and prevent fertilization. The hormone IUD slowly releases progesterone into the uterus

and has the ability to thin the cervical lining, making it difficult for sperm to penetrate and preventing the fertilized egg from implanting in the uterus. [15-17]

A contraceptive implant is a thin device, usually the size of a matchstick, that is placed under the skin of the arm and constantly releases contraceptive hormones. The hormones in the implant prevent ovulation, thicken the cervical lining to prevent sperm from passing through, and thin the uterine lining to prevent the fertilized egg from implanting. [15-16]

Injectable contraceptives are injections containing contraceptive hormones and should be given by a doctor at regular intervals (usually every three months). The hormones in injections

prevent ovulation, thicken the cervical lining, and thin the uterine lining. [15-17]

The hormone IUD is similar to the copper IUD, but also releases contraceptive hormones to prevent pregnancy. The hormones in the hormone IUD prevent ovulation and thicken the cervical lining to prevent sperm from passing through. [16-18]

Emergency contraceptives (morning-after pill) are contraceptives used after unprotected sex or in case of failure of ordinary contraceptive methods. They should be taken as soon as possible after unprotected intercourse and should not be used as a regular method of contraception. [16-18]

Each of these options has advantages and disadvantages and may be suitable according to the individual needs and preferences of each woman. It's important to talk to a doctor to determine the best contraceptive option for you. [15-18]

Potential risks and complications associated with contraceptive use during pregnancy

The use of birth control pills during pregnancy may pose some potential risks and complications, although these are rare and largely depend on the type of contraceptive used and when it was used in relation to pregnancy and general status. [17-19, 33-46]

In the early stages of pregnancy, the IUD can affect the normal processes of implantation and development of the

embryo in the following ways: interference with embryo implantation, uterine irritation, prostaglandin production, local changes in the uterine environment. These issues highlight potential ways in which an IUD can influence pregnancy in its early stages and may explain, in part, the increased risk of miscarriage associated with pregnancies that occur while using IUDs. [18-20]

The overall pregnancy rate in people using an intrauterine device (IUD) for contraception is less than 1%. If a pregnancy occurs while an IUD is in place, there is an increased risk of ectopic pregnancy. We present a case where a woman had an IUD and was 7 weeks pregnant, suffering a miscarriage a week later. [18-20]

Upon examination, it was found that the woman was 7 weeks pregnant and had an IUD instead of more than 4 years. Although a vaginal examination revealed no bleeding or blood clots, it was observed that the uterus showed partial dilation of the cervix. The wire of the IUD was not visible. Transvaginal ultrasound showed the presence of a gestational sac in the uterine cavity with an embryo and a crown-fundus length of 11.4 mm. The fetal heart rate was 159 beats/minute. The IUD was located in the retroplacental region. The right ovary measured 2.9 cm and the left ovary measured 2.5 cm and looked normal. The diagnosis was of intrauterine pregnancy with an IUD in place and an impending miscarriage. [18-20]

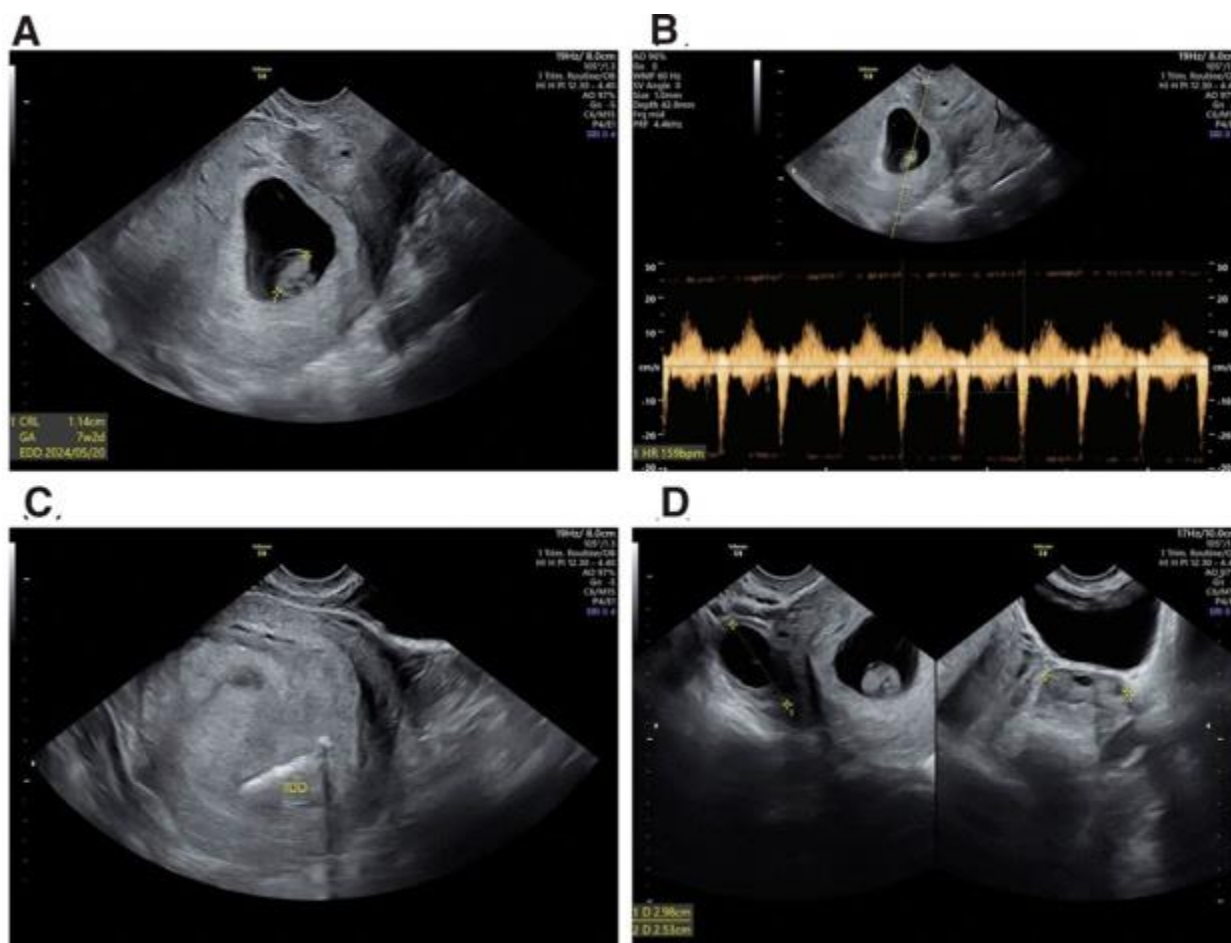


Fig.2 Transvaginal ultrasound showed the following in case of pregnancy with an IUD in place: (A) The length of the crown of the fetus was measured. (B) The fetal heartbeat recorded 159 beats per minute. (C) The IUD was detected in the placental region. (D) Bilateral adnexa presents a normal appearance. The diagnosis was of intrauterine pregnancy with an IUD in place and an impending miscarriage. [19]

One of the main risks is possible exposure to medicinal substances that can have adverse effects on fetal development. Although many birth control pills are considered safe for use during pregnancy, certain medications or active substances may pose greater risks. [21-23]

The risk of birth defects may be increased with certain medications, especially in the first trimester of pregnancy, when major development of fetal organs and structures occurs. Contraceptive use during pregnancy can also lead to delays in pregnancy diagnosis, as some early pregnancy symptoms (such as absence of menstruation) may be masked by contraceptive use. [21-23]

The effects on fetal development largely depend on the timing and duration of exposure to birth control pills, as well as their composition. The risk of adverse effects on the fetus is considered small, but it is important to carefully monitor the fetus during pregnancy for any abnormalities or potential complications. [22-24]

Some contraceptive medicines, such as those containing retinoids or other active substances known for their teratogenic effects, may pose greater risks to foetal development. [22-24]

It is essential that women using birth control pills are aware of the possible risks associated and discuss any concerns or

questions about their use during pregnancy with their doctor. [23-26]

Risk assessment by type of contraceptive

The use of oral contraceptives (birth control pills) during pregnancy may increase the risk of birth defects, especially with certain medicines in this category containing active substances associated with teratogenic effects. [24-26]

There is an increased risk of thromboembolic complications such as

deep vein thrombosis or pulmonary embolism, especially in women who have additional risk factors such as family history of thrombosis or smoking. Not all types of progestogens have the same level of risk for venous thrombosis. Some studies and research have identified certain progestogens that may have a higher risk in this regard, and this aspect can be taken into account when prescribing or choosing combined contraceptive pills for each individual. [25-28]

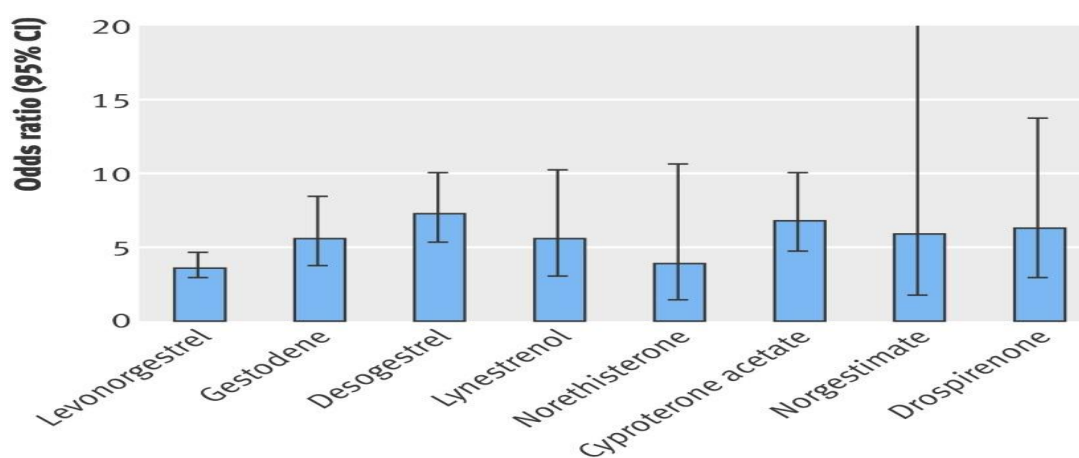


Fig.3 The risk of venous thrombosis is associated with various types of progestogens used in birth control pills. [26]

Women who use birth control pills and become or become pregnant should immediately consult a doctor for further evaluation and counseling. It is important that doctors are informed about the patient's medical history and the medicines they are using in order to assess potential risks and provide appropriate recommendations. [25-28]

The effects on pregnancy of non-oral contraceptives (such as contraceptive patch, vaginal ring, contraceptive injections, implants and intrauterine devices) vary depending on the type of non-oral contraceptive and the active substances involved. The risk of birth defects appears to be lower compared to birth control pills, but some medications, such as those

containing retinoids, may pose increased risks. [29-30]

Women who use non-oral contraceptives and become or become pregnant should consult a doctor for evaluation and counseling. It is important for doctors to be aware of the specific composition of the contraceptive used and to provide individualized counseling according to the needs and circumstances of each patient. [29-30]

In general, regardless of the type of contraceptive used, it is essential that women are aware of the potential risks associated and seek prompt medical attention if there are any concerns or questions about their use during pregnancy. Consultation with a doctor can help assess individual risks and develop an appropriate care plan for the health and safety of both mother and fetus. [30-32]

Conclusions

The use of contraceptives during pregnancy can pose potential risks and complications, and decisions about their use during this period must be carefully evaluated against the individual benefits and risks of each woman.

Controlled clinical trials in this area are rare, and most evidence comes from observations and case reports. However, available data suggest that contraceptive use during pregnancy is not generally associated with an increased risk of birth defects or other major complications in the foetus.

It is essential that women who use birth control and become or become pregnant receive appropriate medical evaluation and counselling to assess risks and make informed decisions about pregnancy management and contraceptive use during pregnancy.

More controlled clinical trials are needed to directly assess the risks associated with contraceptive use during pregnancy and to identify possible adverse effects on the foetus.

Longitudinal studies tracking the long-term evolution of pregnancy and the child in case of exposure to contraceptives during pregnancy could provide a more complete understanding of the risks and long-term consequences.

Further investigation into the mechanisms of action of birth control pills during pregnancy and how they may influence fetal development could provide useful information for managing and counseling women who are pregnant or planning to become pregnant.

Finally, further research in this area is crucial to improve medical practice and ensure the safety and health of both mothers and their children.

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