



REVIEW ARTICLE

Contraception and pregnancy in adolescence

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Abstract

Objective: to review and discuss different contraceptive methods currently used by adolescents, and also discuss adolescent pregnancy, including the associated risks and the importance of prenatal care.

Methods: review of literature and clinical experience with different contraceptive methods and with adolescent pregnancy.

Results: the oral contraceptive pill is the most common method used by teenagers due to its low failure rate and other non-contraceptive effects. Emergency contraception is a good option in cases of rape, unplanned sexual intercourse, condom rupture, nonuse of oral contraceptives during short intervals. In this case, the pill should be taken within 72 hours after the intercourse (preferably before 24 hours for best effect). Most problems related to adolescent pregnancy have a social or economic origin; however, some medical complications such as preterm labor and anemia are frequently reported.

Conclusions: the use of male and female condoms combined with other contraceptive methods should be encouraged to prevent sexually transmitted diseases. If pregnancy is confirmed, prenatal care must be implemented as soon as possible in order to minimize the risks of complication and to allow for an effective multidisciplinary approach.

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Contraception in adolescence

Introduction

In addition to a good technical preparation, the practice of gynecology with adolescents requires a good doctor-patient relationship. The gynecological care of adolescent girls demands time, attention, interest, availability, and knowledgeability concerning the biopsychosocial

characteristics of this age group. An adolescent patient who does not feel at ease with the doctor probably will neither reveal the reason for the appointment nor ask for a return appointment.

Birth control is also a very important matter, considering that even in developed countries there are still unplanned adolescent pregnancies. The term unplanned is adopted in place of undesired since most impregnated adolescents actually do, or start to, desire the pregnancy; whereas most adolescents had not planned it. In this sense, in view of the large number of sexually-active adolescents, of the increasingly premature beginning of sexual activity, of the consequences of an unplanned pregnancy, and of the frequent

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change in sexual partners, it is of utmost importance for doctors who attend the adolescents to be prepared to provide guidance regarding birth control to these young patients.

The best method would be one that offered the best cost and compliance, least possible side-effects, reversibility, and effectiveness.¹ The choice of the method should be made according to a group decision between the healthcare professional and the couple. Stimulating the participation and presence of the partner helps sharing the responsibilities, and improving maturity and quality of the information provided regarding reproductive health. Return appointments should be frequent during adolescence in order to maintain a better compliance with the method chosen and stimulating safe sex: choice of an appropriate partner and use of the condom independently of the use of other birth control method. Nowadays, most adolescents are aware of the existence of diseases such as AIDS and other sexually-transmitted diseases (STDs), of the condom, of oral contraceptive methods, and so on. However, an increased number of adolescents worldwide still have problems with reproductive health. The Brazilian Ministry of Health reported that, in 1999, 25.74% of deliveries carried out by the Brazilian Public Healthcare System (SUS) were of adolescent mothers.² The choice of a birth control method should take into account several different variables, such as age, schooling, social and economical status, parity, and social context. Providing a differentiated healthcare service represents an important preventive measure for patients at greater risk for adolescent pregnancy and/or STDs, who characteristically present low self-esteem, lack of future perspective, family problems, use of drugs, and depression.

Another important factor is that the time between the first sexual intercourse and seeking healthcare services tends to be of several months. The delay in seeking medical orientation results in the fact that several adolescents are already pregnant when they arrive at the doctor's office. In the United States, the average time to seeking healthcare services is 12 months. It is also known that in the US 50% of adolescent gestations occur during the first six months of sexual activity. Seemingly, however, adolescents tend to seek healthcare assistance more prematurely when the services specialize in care of adolescents. It is estimated that 25 to 50% of adolescents do not use any type of contraceptive method in their first sexual intercourse. Moreover, studies have shown that up to 50% of adolescents discontinue the use of a contraceptive method in the first three months.³

In this sense, it is understood that, even in developed countries, simply stimulating the use of contraceptive methods in situations of sexual intercourse has not decreased the rates of unplanned pregnancies. Consequently, healthcare policies aimed at decreasing these rates should include offering sexual education at the school, orientation for parents, adequate training for instructors and teachers, healthcare services for adolescents in the vicinity of the

school, easy appointments, free distribution of routine and emergency birth control methods, and encouraging the involvement of the sexual partner in the matter.

The matter of sexual abstinence should also be discussed with adolescents. Maintaining one's virginity should be a choice of the adolescent and the healthcare professional may provide guidance in making that choice. Several adolescents initiate their sexual activity in order to fit in with their peers.

In addition to an adequate physical examination, physicians should carry out careful interviews in order to better get to know their patients from a biopsychosocial vantage point.

In the following pages, we will discuss the several contraceptive methods presented in Table 1.

Table 1 - Contraceptive methods

1. Hormonal contraception

Combined

- oral hormonal contraceptives
- postcoital hormonal contraceptives
- injectable hormonal contraceptives
- vaginal hormonal contraceptives

Only with progesterone

- hormonal contraception only with oral progesterone
- hormonal contraception only with postcoital progesterone
- hormonal contraception only with injectable progesterone
- hormonal contraception only with progesterone subdermal implant
- hormonal contraception only with progesterone-releasing IUDs

2. Barrier methods

- diaphragm
- male and female condom
- spermicide
- sponge

3. Intrauterine device

4. Sterilization

5. Less efficient methods

- coitus interruptus
 - rhythm method
 - basal body temperature method
 - vaginal douching
-

1. Hormonal contraceptive methods

1.1 - Combined hormonal contraceptives

Combined hormonal contraceptives apply an association of synthetic estrogen (usually ethinylestradiol) and a progestagen.⁴

Combined oral contraceptives

This method was initially commercialized in the 1960s with 150 µg pills of ethinylestradiol; later on, in order to reduce side-effects and risk of thromboembolism, this dosage was decreased.⁵ Combined oral contraceptives (COC) is the most frequently used method in adolescents due to its high effectiveness (99.7%), to its being easy to use, to its noninterference in sexual intercourse and safety, and, also, to its benefits being greater than the risks.⁶

Classification

COC can be administered in medium-dose (50 µg of ethinylestradiol) or low-dose (35 µg of ethinylestradiol or less) pills. Currently, the most widely used methods apply 20 to 35 µg of ethinylestradiol. On the one hand, the reduction of the hormonal dosage to 20 µg of ethinylestradiol decreased the incidence of side-effects and metabolic effects such as thromboembolism; on the other, however, the incidences of contraception failure have increased with patients missing oral contraceptives (> 12 hours) or with drug interactions. Patients with hyperandrogenism can benefit from methods that include an antiandrogenic (Diane 35[®], Selene[®]) or a hyperestrogenic (Gracial[®]) component. Patients who make appropriate use of birth control pills (take the pill at the correct time) are good candidates to using the 20 µg ethinylestradiol method. Medium dosage ethinylestradiol are reserved for patients presenting intermenstrual bleeding from lower dosages and not resulting from endometritis (chlamydia, mycoplasma, and ureaplasma) or for patients who are using pharmaceuticals that can interfere in steroid metabolism (barbiturates, phenytoin, carbamazepine, primidone, rifampicin, clofibrate, ampicillin, tetracycline, etc.).

COC with fixed-dose estrogen and progestagen formulations in all 21 pills are called monophasic contraceptives, whereas those with varied formulations are called triphasic or diphasic.

Composition

Most pills contain the same type of estrogen (ethinylestradiol) and different progestagens, as illustrated in Table 2. The progestagens present different estrogenic, antiestrogenic, and androgenic effects.⁷ With the reduction in the dosage of estrogens, the androgenic effects of progestagens became more apparent, which lead to the development of new progestagens. The third-generation progestagens (gestodene, desogestrel, norgestimate) are weak antiestrogens with less androgenic activity and that are associated to less alterations in carbohydrate metabolism. The cyproterone is the oldest progestagen; it is derived from the pregnane and offers a potent antiandrogenic effect. In that sense, it is used in the treatment for acne and hirsutism or in patients who present symptoms of virilization following the use of other methods.

Mechanism of action

Oral contraceptives function with three mechanisms of action¹:

- 1) anovulation;
- 2) alteration in cervical mucus;
- 3) endometrial atrophy.

The mechanisms of alteration in cervical mucus and endometrial atrophy result from the effects of progestagens and make transportation and implantation of the embryo, respectively, unsatisfactory.

*The absolute contraindications are:*⁸

- unexplained vaginal bleeding;
- suspected or diagnosed gestation;
- breastfeeding < 6 weeks postpartum;
- smoking (> 20 cigarettes/day) in women aged over 35 years;
- arterial hypertension (180 x 110 mmHG)
- current and history of deep venous thrombosis;
- current and history of current pulmonary embolism;
- major surgery with prolonged immobilization;
- current and history of ischemic heart disease;
- stroke (history of cerebrovascular accident);
- complicated valvular heart disease (pulmonary hypertension);
- headaches, including migraine with focal neurologic symptoms;
- acute viral hepatitis;
- severe (decompensated) cirrhosis;
- benign or malignant liver tumors;
- diabetes of > 20 years' duration or with nephropathy, retinopathy, or neuropathy.

*Careful medical supervision is required in cases of:*⁷

- risk for thromboembolism (anemia, obesity, important varicose veins, immobilization);
- history of jaundice in pregnancy and abnormal biliary excretion;
- gallbladder diseases;
- hemicranial headaches;
- epilepsy, psychosis, and severe neurosis;
- scleral plaques;
- mild or moderate arterial systemic hypertension (ASH);
- renal and cardiac failure;
- otosclerosis;
- hyperprolactinemia;
- moderate diabetes mellitus;
- use of drugs that interact with the contraceptive medication;

Table 2 - Composition of oral contraceptive combinations available in the market

| LOW DOSAGE – MONOPHASIC | | |
|-----------------------------------|-------------------------|---|
| Estrogen (mg) | Progestagen (mg) | Brand name |
| Ethinyl estradiol – 0.030 | Levonorgestrel – 0.150 | Nordette [®] , Microvlar [®] |
| Ethinyl estradiol – 0.020 | Desogestrel – 0.150 | Mercilon [®] , Femina [®] |
| Ethinyl estradiol – 0.030 | Desogestrel – 0.150 | Microdiol [®] |
| Ethinyl estradiol – 0.020 | Gestodene – 0.075 | Femiane [®] , Harmonet [®] , Diminut [®] |
| Ethinyl estradiol – 0.030 | Gestodene – 0.075 | Minulet [®] , Gynera [®] |
| Ethinyl estradiol – 0.035 | Ac. Ciproterona – 2.00 | Diane 35 [®] , Selene [®] |
| LOW DOSAGE – BIPHASIC | | |
| Estrogen (mg) | Progestagen (mg) | Brand name |
| Ethinyl estradiol – 0.040 | Desogestrel – 0.250 | Gracial [®] |
| Ethinyl estradiol – 0.030 | Desogestrel – 0.125 | |
| LOW DOSAGE – TRIPHASIC | | |
| Estrogen (mg) | Progestagen (mg) | Brand name |
| Ethinyl estradiol – 0.030 | Levonorgestrel – 0.050 | Trinordiol [®] , Triquilar [®] |
| Ethinyl estradiol – 0.030 | Levonorgestrel – 0.075 | |
| Ethinyl estradiol – 0.030 | Levonorgestrel – 0.125 | |
| Ethinyl estradiol – 0.035 | Norethisterone – 0.500 | Trinovum [®] |
| Ethinyl estradiol – 0.035 | Norethisterone – 0.750 | |
| Ethinyl estradiol – 0.035 | Norethisterone – 1.000 | |
| MEDIUM DOSAGE – MONOPHASIC | | |
| Estrogen (mg) | Progestagen (mg) | Brand name |
| Ethinyl estradiol – 0.050 | levonorgestrel – 0.250 | Evanor [®] , Neovlar [®] , Normamor [®] |
| Ethinyl estradiol – 0.050 | Lynestrenol – 1.000 | Anacyclin [®] |
| Ethinyl estradiol – 0.050 | Norethisterone – 0.250 | Ciclovelon [®] |
| Ethinyl estradiol – 0.050 | DL–Norgestrel – 0.500 | Anfertil [®] , Primovlar [®] |

Patient concerns

The compliance rates for contraceptive methods in adolescence are low. Some of the reasons for the discontinuation are: concern with self-image (fear of gaining weight, cellulitis, etc), abnormal bleeding, fear of infertility, being discouraged by the partner or relatives, and so on. Consequently, it is important to maintain the patient informed of the high effectiveness of the drug, of the low incidence of weight gain and acne, of the immediate return to fertility following discontinuation of COC, of the possibility of intermenstrual bleeding (spotting) during the first three months, and of the several noncontraceptive benefits. Intermenstrual bleeding is usually self-limiting and will cease spontaneously. However, Intermenstrual bleeding in women previously well regulated on COCs was reported as an apparent added marker for chlamydial infection.⁹ In this sense, adolescents and their parents are often misinformed

about the side-effects of COCs, which may adversely affect compliance.¹⁰

The benefits of COCs are:

- possible improvement of dysmenorrhea;
- possible improvement of acne;
- possible improvement of pre-menstrual syndrome;
- possible suppression of ovarian and mammary cysts;
- possible decrease in risk for anemia;
- possible decrease in menstrual flow;
- programming menstrual bleeding;
- decrease in risk for pelvic inflammatory disease;
- decrease in risk for ectopic pregnancy;
- decrease in risk for ovarian cancer;
- decrease in risk for endometrial cancer;
- possible improvement in bone density.

*The effects are:*¹²

- arguable effect on breast and cervical cancer;
- deleterious effect on liver cancer (extremely rare);
- effect (practically negligible or absent) on growth, considering that adolescent girls have already reached 97% of their height at menarche;
- effects on the hypothalamic-hypophyseal-ovarian axis (reversible after discontinuation);
- effects of estrogen on increase in risk for cardiovascular and lipidic metabolism diseases (lower dosages decrease risk);
- effects of progestagen on increasing glucose intolerance (third-generation progestagens present lower risks);
- effects of COC increasing 4 to 5% the risk for ASH; third-generation progesterone presents an antiminerlocorticoid effect that decreases this risk.

Combined hormonal postcoital contraceptive (HPC)

Postcoital contraception can be administered with COC or just progesterone. HPCs can be administered following sexual intercourse in situations of emergency contraception: rape, unprotected sexual intercourse, condom breakage, missing one or more oral contraceptives, and more than 14 weeks since last Depo-provera[®] injection.¹² Use of HPC should start before 72 after sexual intercourse; HPCs are more effective if used within the first 24 hours.

The Yuzpe method consists of prescribing 100 µg of ethinylestradiol and 250 µg of levonorgestrel¹³ in two COC pills twice daily within 12-hour intervals (for a total of four pills). This high dosage of estrogens usually causes nausea and vomiting. To minimize side-effects, an antiemetic can be prescribed 30 minutes before the COC. The effectiveness of this method is 90 to 95%.

Combined injectable hormonal contraceptive

Injectable contraceptives are a good alternative for patients who forget to take COC or present gastric intolerance to oral administration of contraceptives.¹⁴ The effectiveness of injectable contraceptives is similar to that of COC; also, injectable contraceptives avoid the first passage metabolism in the liver. However, this method frequently causes menstrual disorders. The advantages of injectable contraception are: extremely high effectiveness; time between dosages; possibility of use of natural steroids; lower hepatic overload; lower dosage required for contraceptive effect; and decrease in nausea and vomiting.⁵

There are injectable contraceptives with 1-ml ampoule combinations of 150mg of dihydroxyprogesterone acetophenide and 10 mg of estradiol enanthate (Perlutan[®], Uno-ciclo[®], Ciclovular[®]). These contraceptives should be applied intramuscularly to the gluteal region between the 7th and 10th day of the menstrual cycle.

Another commercial alternative of once-a-month injectable contraceptives is the Mesigyna[®], which consists

of norethisterone enanthate at 50 mg and estradiol valerate at 5 mg. The intramuscular injection should be applied on the first day of menstrual flow and repeated every 30 + 3 days, independently of the menstrual cycle.

Hormonal contraceptive pill administered by vaginal route

Each pill contains 250 µg levonorgestrel and 50 µg ethinylestradiol (Lovellette[®]). The effectiveness of this method is similar to that of COC.¹⁵ Administration by vaginal route allows for less adverse gastric effects and for metabolic benefits, since it avoids the first passage metabolism in the liver (less alterations in lipidic and apolipoprotein metabolism). Use of this method starts on the fifth day of menstrual bleeding and in the following months on the eighth day of menstrual bleeding. The method consists of 21 pills that should be taken once daily at approximately the same time.

1.2 - Progestogen-only contraceptive

Oral progestogen-only contraceptive (minipill)

The minipill contains norethisterone 0.35 mg (Micronor[®]), lynestrenol 0.5 mg (Exluton[®]), levonorgestrel 0.030 mg (Nortrel[®]) or desogestrel 0.075 mg (Cerazette[®]). The minipill should be administered daily and orally without interruption. The gestation rate is of 0.2 to 3%. Ovulation is inhibited in only 50% of cases; the main mechanism of action of the minipill is inhibition of sperm transport. The use of this method is indicated in cases of reduced fertility (for example, when breastfeeding), of contraindication for use of estrogen, or of intolerance to combined contraceptives.¹²

Postcoital progestogen-only contraceptive

This method can be administered following sexual intercourse in situations of emergency contraception: rape, unprotected sexual intercourse, condom breakage, missing one or more oral contraceptives, and more than 14 weeks since last Depo-provera[®] injection.¹² Use of the method should start before 72 after sexual intercourse; however, it is more effective if used within the first 24 hours.⁶

The 0.75-mg containing levonorgestrel (Postinor-2[®], Pozato[®]) should be taken right after unprotected coitus (maximum of 72 hours later). The sooner the pill is taken after sexual intercourse, the greater the effectiveness. The second pill should be taken 12 hours after the first dosage. This drug should not be administered in cases of diagnosed gestation since it has no effect after the process of implantation.

This contraceptive method prevents ovulation, fertilization and implantation. It acts on the hypothalamic-pituitary-ovarian axis, endometrium (direct inhibition of implantation or direct effect on the blastula), ovarian tubes (alteration in tubal motility), and sperm (inhibition of the last stage of sperm maturation in the female system).

In general, the 'morning after' or emergency contraceptive pills are less effective than regular contraceptive methods. Furthermore, these methods cannot be used regularly considering that the failure rate for one whole year of use is higher than that of regular hormonal contraceptives. The sooner the postcoital contraceptive is taken after sexual intercourse, the greater the effectiveness of the drug: 95% during the first 24 hours, 85% from 25 to 48 hours, and 58% from 49 to 72 hours.

The most commonly reported adverse reactions are nausea, vomiting, irregular uterine bleeding, breast tenderness, headaches, dizziness, and fatigue.

Injectable progestogen-only contraceptive (Depo-provera®)

The injectable contraceptive depot medroxyprogesterone acetate (DMPA 150 mg) (Depo-provera®) is administered intramuscularly to the gluteus or the deltoid every 12 weeks.⁷ The first dosage should be administered up to the seventh day of the menstrual cycle. This method provokes anovulation, endometrial atrophy, and alteration in cervical mucus. The failure rate for the DMPA is 0.3%. Common side-effects are menstrual irregularities and after 6 months several patients present amenorrhea (50% during the first year and 70% after three years), and it can also cause weight gain and acne. Depo-provera is widely indicated in patients who tend to miss oral contraceptives, who have contraindications for estrogens, and in cases of drug interactions (for example, anticonvulsants).

Since most girls do not reach peak bone mass before age 16 years, it is indicated in patients aged > 16 years due to its association with possible suppression of the expected skeletal bone mineralization (at least temporarily).¹⁶

Subdermal, progestogen-only contraceptive implant (Norplant®)

The Norplant® is a subdermal, non-biodegradable system that contains levonorgestrel. It is implanted subdermally on the forearm using a trocar. The implant should be replaced every five years.¹⁷ This method presents failure rates of 0.04% in the first year and 1.1% on the fifth year. The mechanism of action of the Norplant is anovulation and alteration in cervical mucus. The most common side-effect is menstrual irregularities (prolonged bleeding, spotting, and amenorrhea) though there are also cases of headaches, weight gain or loss, and depression.

The fact that this method presents high effectiveness and extended duration make it a good choice of contraceptive in adolescents who can tolerate menstrual irregularities.

Levonorgestrel-releasing, progestogen-only intrauterine system (Mirena®)

The levonorgestrel-releasing intrauterine system (LNG-IUS; Mirena®) applies a T-shaped polyethylene structure (32 mm in length) that contains a cylinder with a combination

of poly(dimethyl siloxane) and levonorgestrel. The T is impregnated with barium sulfate, which makes it visible at X-ray examinations. The system releases 20 µg of levonorgestrel every 24 hours and it lasts five years.¹⁸

Contraceptive effect and effectiveness of the LNG-IUS are based on the local effects of levonorgestrel. The method nearly does not affect the ovarian function, which means that serum estradiol remains within normal levels. LNG-IUS causes alterations in cervical mucus, which becomes scarce and viscous, and in endometrial morphology. Inhibition of ovulation is not considered important for the high effectiveness of the LNG-IUS. Anovulatory cycles are related to the high serum concentration of levonorgestrel and are more frequent during the first year of use. Following a few years of use, over two thirds of the cycles are ovulatory, which suggests that the low serum LNG concentration after four to six years is insufficient to suppress the hypothalamic-hypophyseal-ovarian function despite the fact that the local endometrial effect is maintained.

The LNG-IUS is a very effective contraceptive. Three-year follow-up studies showed that the pregnancy rate varied from 0 to 0.3%, in other words, similar to that of COCs. The method decreases amount and duration of menstrual bleeding. In patients with normal menstrual cycle, the duration of menstrual bleeding decreases and, after one year of use, this duration can be shorter than one day. After three months, patients with menorrhagia reportedly presented a decrease of approximately 86% in menstrual flow; after one year, this decrease was of 97%. LNG-IUS presents an alternative for hysterectomy and endometrial resection in women with menorrhagia. It also presents the advantage of being reversible and the possibility of being used in young women. Following use of the method there is a 1.0 to 1.5g/dl increase in hemoglobin concentration and in iron reserves (after five years of use); this decreases risk for ferropenic anemia and depletion of iron reserves.

2 - Barrier methods

2.1 - Diaphragm

The diaphragm is a small rubber device with a firm, flexible outer ring. Upon insertion into the vagina, it forms a physical barrier in the cervix. The duration of the device is two years.⁷

The use of the diaphragm requires maturity, self-motivation, previous medical examination, and familiarity with one's genitals. It presents a good acceptance with university-level patients. The method presents good effectiveness especially when used in combination with spermicides (81 to 98%). The diaphragm should be placed right before sexual intercourse and removed after six hours.

2.2 - Male and female condom

The condom is a good contraceptive method and it also helps the prevention of STDs, including AIDS. When used

in combination with spermicides, it presents very good effectiveness (90 to 98%). If lubricants are used, they should be water-based (KY-gel®) since oil-based (Vaseline) can favor condom breakage.⁷ Condoms should be used throughout the sexual intercourse and be discarded after use.

Currently, in addition to the male condoms, there are the female condoms. Due to their bag-like shape and external ring, in addition to protecting the cervix and the vagina from STDs, the female condoms also protect the vaginal introitus and labia. Its effectiveness increases especially when used in association with spermicidal lubricants. Female condoms are more resistant and durable than the male condom and are inserted prior to sexual intercourse.

2.3 - Spermicide

Nonoxynol-9 is the most widely used substance in spermicides.⁷ When used separately, spermicides present little effectiveness. It increases the effectiveness of other methods such as the condom and diaphragm. Spermicides should be administered 30 minutes prior to sexual intercourse and removed 6 hours after.

2.4 - The sponge

Sponges are made of polyurethane combined with nonoxynol-9.⁷ Its shape is slightly concave in order to better adapt to the uterine cervix; prior to insertion, the sponge should be humidified to activate the spermicide. Sponges should be removed six to eight hours after sexual intercourse. These devices can be used prior to the sexual intercourse and should be discarded after use. The sponge is relatively effective and presents gestation rates of nine to 27 per 10 women per year. It is still not available in Brazil.

3 - Intrauterine device (IUD)

The IUD is an effective method (95 to 98%), does not require self-motivation, and does not interfere with sexual intercourse. The use of the IUD presents a greater risk for pelvic inflammatory disease, it does not protect the patient from ectopic gestation, and it increases menstrual flow and cramps. There is also risk for uterine perforation or expulsion. It is the ideal method for patients with steady sexual partners who already have had children and who are not willing or cannot use another method. Currently, the latest IUDs can be removed every five years.

4 - Sterilization

Sterilization is not a widely used method in adolescents because it is irreversible.⁶ It can be indicated in special situations, such as those of mentally handicapped patients with risk for sexual activity and who do not accept, or cannot use, other methods. These cases require, however, parental consent and judicial authorization.

5 - Less effective (behavioral) methods

5.1 - Coitus interruptus

This method presents little effectiveness considering that males release spermatozooids prior to the ejaculation.⁷ This method requires self-control and interferes with sexual intercourse.

5.2 - The rhythm method

The rhythm method is not indicated for adolescents who do not have regular menstrual cycles, a situation that is very frequent in this age group. This method consists of periodic abstinence near the fertile period, which precedes the menstrual cycle in approximately 14 days. Consequently, the rhythm method cannot be used by patients who are not sure of when their menstrual cycle starts.

The Ogino-Knaus adjustment consists in assessing six to 12 menstrual cycles while avoiding the fertile period, which is calculated by⁷:

- subtracting 18 days from the shorter cycle (first day of fertile period);
- subtracting 11 days from the longer cycle (last day of fertile period).

5.3 - Baseline temperature

This method consists of daily baseline measurement of body temperature (armpit or mouth).⁷ Considering that body temperature rises after the ovulation, it is a good method for diagnosis of the ovulation, and not for contraceptive purposes.

5.4 - Vaginal douching

Vaginal douching is ineffective since the spermatozooids can reach the upper genital tract in a matter of seconds.⁷

Final considerations

Contraception in adolescence should be discussed with all healthcare professionals who work with this age group. In general, adolescents are healthy and present good fertility and high risk for unplanned gestation or contracting STDs.

Adolescents with low self-esteem, poor school performance, and little future perspectives deserve special treatment and attention, since these patients are the ones at higher risk for unplanned gestations or contracting STDs.

There is no one ideal contraceptive method, but rather, there are better methods for each patient. In this sense, the contraceptive method should be carefully discussed and chosen together with the patient and, preferably, with the partner. In general, COC is the most widely used contraceptive method within this age group since it is safe, presents low risks and other noncontraceptive benefits (decrease in acne and menstrual flow, regular menstrual cycles, and so on). Independently of the contraceptive method adopted, the use of male or female condoms should

be stimulated for the prevention of sexually transmitted diseases.

Emergency contraceptive methods are a good alternative in cases of rape, unprotected sex, condom breakage, missing one or more oral contraceptives, and more than 14 weeks since last quarterly injection of contraceptive. These methods should be used before 72 hours following sexual intercourse; effectiveness is higher if used within the first 24 hours.

Gestation in adolescence

Introduction

The gestation rates in Brazil vary according to region and to cities. In the city of Porto Alegre, state of Rio Grande do Sul, southern Brazil, 20% of all livebirths are from adolescent mothers; however, this data from the Rio Grande do Sul State Department of Health does not account for abortions (spontaneous or not) and stillbirths.

It is understood that sexual risk behavior is a result of premature sexual initiation, frequently associated with family dysfunction. As a result, the incidence of unplanned gestations, STDs, and AIDS is higher in risk-behavior individuals.^{19,20}

It is only through a joint effort of healthcare and education institutions that changes in the behavior of adolescents can be achieved towards a decrease in sexual activity, a popularization of long-term hormonal contraceptives, and an increase in use of condoms.²¹

Risks of gestation in adolescence

Many problems resulting from adolescent pregnancy are not of the medical kind; pregnant adolescents are susceptible to social and economical problems since they usually have to drop out of school to take care of the children, or start working to support them.

In the long run, the perspective of a productive life is lower for both the adolescents and their babies, resulting in a possible significant social and economical impact.²² Among the risks of gestation in adolescence, there is the increased risk for negligence and abuse of babies. Also, adolescents present higher tendencies of smoking, drinking alcoholic beverages, and using drugs during gestation, which, in turn, are all risk factors for the health of newborn babies.²³

The most frequent medical complications of adolescent pregnancies are premature labor and anemia.

All of the above aspects can be controlled to a lesser or greater extent by providing regular healthcare; in this sense, however, another characteristic of this population is that of difficulties in seeking and maintaining prenatal care.

Reasons for adolescent pregnancies

It is difficult and usually unwise to generalize. However, there are situations repeatedly reported in several studies, including:

1. contraceptives are used only approximately one year after initiation of sexual activity;
2. doubts regarding reproductive capacity, which, at times, is being tested unconsciously;
3. reluctance in doing away with the spontaneity of sexual relationships by planning them and using contraceptive methods;
4. fear that family members will find out about the use of contraceptive methods;
5. in early adolescence, impulse actions usually predominate over the cognitive capacity of planning;
6. misinformation regarding the fact that as gynecological age increases, so do the ovulatory cycles and fertility;
7. fear of gaining weight or cancer following use of hormonal contraceptives;
8. inadequate use of the contraceptive method.¹

Gestation diagnosis

Healthcare professionals who work with adolescents must be able to diagnose gestation as soon as possible and, thus, be more suspicious than usual.

Adolescents frequently deny having sexual intercourse, do not remember the date of last menses, do not report symptoms suggestive of gestation, and also do not believe in the possibility of being pregnant. Consequently, in cases of one or two-week long delay in menstrual cycle, it is necessary to request a beta-hCG test.

Signs and symptoms of gestation

The most frequent sign of gestation is delay in menses, which can be easily perceived by girls who make regular note of their menstrual cycle in a menstrual cycle calendar.

Making note of the menstrual cycle should be systematically stimulated by all professionals who work with female adolescents, the key players in the clinical follow-up of these patients.

In addition to delay in menses, there are other symptoms suggestive of gestation, including: breast tenderness, frequent urination, nausea, and vomiting (especially in the morning); all of which usually occur during the first six weeks of gestation.

Prenatal care

Following confirmation of the diagnosis of gestation, the young patient should be referred to prenatal care services.

At the first prenatal care appointment, in addition to the medical examination, doctors should also examine gynecological history, history of morbidity, family history of morbidity, immunization (vaccine) status, and family and social aspects, in addition to situations of acceptance, ambivalence, and rejection of the gestation.

Services aimed at attending pregnant adolescents should organize a multidisciplinary team with psychologists, nurses and, ideally, social workers.

Laboratory exams should be requested according to the routine established by the Brazilian Ministry of Health for all pregnant women, independently of age group.²⁴

Immunization (vaccine) status

The prevention of neonatal tetanus has been carried out for decades with the administration of the tetanus vaccine in pregnant women. The Adult-type Tetanus (AT) vaccine is the most widely used method, though the vaccine against tetanus toxoid can also be used in the absence of the AT.

Physicians caring for very young adolescents who, often times, are still complementing their vaccination scheme, should always keep in mind that there is the possibility of patients who are inadvertently pregnant; in these cases, there could be contraindications for the administration of measles, mumps, poliomyelitis, varicella, and rubella vaccines.

After the administration of a rubella vaccine, it is necessary to wait at least three months in order not to present risks for a possible gestation; after a varicella vaccine, it is necessary to wait one month.

Vaccines against diphtheria, influenza, hepatitis A and B, and pneumococci do not represent any risk for gestation and, hence, are not contraindicated. In certain situations, as that of sexually-active adolescents who do not use a contraceptive method or at least a reliable one, it may be necessary to carry out tests to rule out cases of early gestation.²⁵

Final considerations

Among adolescents with negative beta-hCG tests, there is a significant number of possible pregnancies in the following months.²⁶

We understand that the moment of the test is extremely important and should be used to stimulate these young females to take into consideration the consequences that would certainly follow if they were to get pregnant.

We also suggest that the sexual partners of female adolescents be involved in the process of contraceptive education and STDs prevention, as well as in cases of taking responsibility as a father.

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Contraception and adolescent pregnancy. *JOGN Nurs.* Sep-Oct 1980;9(5):319-23. doi: 10.1111/j.1552-6909.1980.tb01337.x. Many of the unplanned pregnancies could have been prevented by use of contraceptives, because a large number (52% of the subjects with unplanned pregnancies gave correct answers to all questions regarding at least 1 contraceptive method) of the girls had adequate knowledge of contraception. A large majority knew where to get contraceptive services. The subjects were best informed regarding the methods which are easiest to obtain--foam and condoms. Some of the girls were using contraceptive methods without a complete understanding of the mechanics of the methods. Pregnancy in Adolescence*. Socioeconomic Factors. United States. Although the pregnancy rate in adolescents has declined steadily in the past 10 years, it remains a major public health problem with lasting repercussions for the teenage mothers, their infants and families, and society as a whole. Successful strategies to prevent adolescent pregnancy include community programs to improve social development, responsible sexual behavior education, and improved contraceptive counseling and delivery. Pregnancy Prevention in Adolescents. SAWSAN AS-SANIE, M.D., M.P.H., ANGELA GANTT, M.D., M.P.H., and MARJORIE S. ROSENTHAL, M.D., University of North Carolina School of Medicine, Chapel Hill, North Carolina. Ask and advise all adolescents about contraception and prevention of sexually transmitted infections. Adolescent pregnancy and its outcome constitute a factor of change in future contraceptive choice. Copyright © 2014 North American Society for Pediatric and Adolescent Gynecology. Published by Elsevier Inc. All rights reserved. 11 Contraceptive use among adolescents is still a complicated issue in many settings; 12,13 nevertheless, it is well-established that LARC methods are the best contraceptive choice to avoid unplanned pregnancy. [12][13][14] LARCs promote similar efficacy between typical and perfect use with only one intervention. 8,13,15 The postpartum period is an excellent opportunity to initiate contraception because, at this moment, women are motivated to avoid a new pregnancy. For some adolescents, pregnancy and childbirth are planned and wanted. In some contexts, girls may face social pressure to marry and, once married, to have children. Each year, about 15 million girls are married before the age of 18 years, and 90% of births to girls aged 15 to 19 years occur within marriage. The physical body, attitudes, and powerful feelings aroused particularly in adolescence need to be discussed in the home and in the schools from the earliest time of a child's education. Sexual feelings are neither bad nor good. They are a part of the very essence of our being as are our sciences, history, philosophy, and fine arts. Contraception. Early pregnancies among adolescents have major health consequences for adolescent mothers and their babies. Pregnancy and childbirth complications are the leading cause of death among girls aged 15-19 years globally, with low- and middle-income countries accounting for 99% of global maternal deaths of women aged 15-49 years.3 Adolescent mothers aged 10-19 years face higher risks of eclampsia, puerperal endometritis and systemic infections than women aged 20-24 years. Preventing early pregnancy and poor reproductive outcomes among adolescents in developing countries. Geneva: WHO; 2011. (16) Raj A, Boehler U. Girl child marriage and its association with national rates of HIV, maternal health, and infant mortality across 97 countries.