Counseling the Adolescent About Contraception

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Objectives

After completing this article, readers should be able to:

1. Delineate the approximate time between an adolescent female becoming sexually active and seeking medical services for contraception.
2. List the noncontraceptive benefits of oral contraceptive pills.
3. List the methods of contraception recently approved by the United States Food and Drug Administration.
4. Describe the value of emergency contraceptive pills.
5. Explain why a pelvic examination is not necessary before starting oral contraceptive pills.

Introduction

The adolescent pregnancy rate in the United States is the highest of any industrialized nation, with more than 1 million adolescents becoming pregnant each year. Pediatricians can help to decrease the teen pregnancy rate by increasing their knowledge of contraception and discussing sexual behavior and contraceptive use during health supervision visits.

Most adolescents begin having sexual intercourse by mid- to late adolescence. Discussions of sexual behavior should begin in early adolescence before the onset of sexual activity so the pediatrician can help prevent unwanted pregnancy and its consequences. The patient interview should include questions about attitudes and knowledge about sexual behavior and appropriate counseling regarding prevention of sexually transmitted infections (STIs), sexual responsibility, and contraceptive methods. The goals of contraceptive counseling are to promote healthy and responsible sexual decision-making. Abstinence should be encouraged as the safest and healthiest means of preventing pregnancy and STIs. The adolescent should be interviewed privately and office policies developed that assure appropriate confidentiality.

It is important for the pediatrician to initiate a discussion of contraception prior to the onset of intercourse because approximately 35% of teens are not using contraception at the time of first intercourse. Indeed, the approximate time between an adolescent female becoming sexually active and seeking medical services for contraception is 12 months. Unfortunately, approximately 20% of all adolescent pregnancies occur within the first month of initiating coitus, and 50% occur within the first 6 months. Some of the reasons for the delay in contraceptive use are adolescents' fear that their parents will find out, reluctance to acknowledge their sexual activity, and a sense of invincibility. Many adolescents also are afraid of having a pelvic examination or have misconceptions regarding the safety and efficacy of contraceptive methods.

Contraceptive efficacy is assessed by determining the number of unintended pregnancies that occur per year while using a contraceptive method. Approximately 85% of sexually active women become pregnant within 1 year if no method of contraception is used. The efficacy of various methods of contraception in the first year of use is shown in Table 1. The ideal or lowest expected failure rate (unintend-

Abbreviations

BMD:	bone mineral density
DMPA:	depo-medroxyprogesterone acetate
ECP:	emergency contraceptive pill
IUD:	intrauterine device
OCP:	oral contraceptive pill
POP:	progestin-only pill
STI:	sexually transmitted infection
VTE:	venous thromboembolism
WHO:	World Health Organization

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Table 1. Contraceptive Efficacy: Percentage of Women Experiencing Unintended Pregnancy During First Year of Use

Method	Lowest Expected Pregnancies	Typical Pregnancies
No contraception (chance)	85	85
Combined contraceptive pill	0.1	3
Progestin-only pill	0.5	3
Depo-medroxyprogesterone acetate	0.3	0.3
Diaphragm with spermicide	6	18 to 20
Male condom	2 to 3	12 to 14
Female condom	5	21
Vaginal spermicides	3 to 6	18 to 26
Intrauterine device	0.1 to 2	0.1 to 3

ed pregnancies per year) is the number of pregnancies that can be expected to occur with perfect use of a method. In contrast, the failure rate with typical use is the number of unintended pregnancies that occur in clinical settings with typical use and includes both method failures and failures that occur due to inappropriate use of the method. Contraceptive methods that do not require frequent action on the part of the patient (eg, injectable hormonal contraceptives) have almost identical ideal and typical failure rates. In contrast, methods that require the patient to take a pill every day (eg, oral contraceptive pills) or use a device with each episode of intercourse (eg, condoms) have failure rates with typical use that are much higher than the ideal failure rate. Younger women can be expected to have higher failure rates with typical use than older women. For example, the typical failure rate for oral contraceptive pills (OCPs) among adolescents has been estimated to be as high as 15% in the first year of use compared with a 3% typical failure rate among women of all ages. This difference is likely due to the adolescent forgetting to take the pill. Among 15- to 17-year-olds, 28% reported missing two or more pills in their most recent cycle.

Counseling the Adolescent Who is Not Sexually Active

Abstinence is the most efficacious method of preventing pregnancy and STIs. Adolescents should be reassured that abstinence is normal and healthy and that many of their peers also are abstinent. It is important that abstinent adolescents also be counseled on what to do if they change their minds or ever are forced into sexual activity. This communicates to patients that the physician is available to them in the future if they need contraceptive services.

Combined Oral Contraceptive Pills

Combined OCPs consist of a synthetic estrogen and progestin. The estrogen component usually is ethinyl estradiol in dosages ranging from 20 to 50 mcg/d. The only other synthetic estrogen used is mestranol, which must be converted to the active estrogen ethinyl estradiol. Approximately 30% of mestranol is lost in the conversion, making a 50-mcg mestranol pill biologically equivalent to a 35-mcg ethinyl estradiol formulation. The progestin component of OCPs is more variable; currently available progestins in the United States include ethynodiol diacetate, norethindrone acetate, norethindrone, norgestrel, levonorgestrel, desogestrel, norgestimate, and drospirenone. Although progestins have been classified in the past by time of introduction as "first generation," "second generation," or "third generation," this classification should be abandoned and a classification based on biologic activity substituted. Norethindrone and those progestins that metabolize to norethindrone (norethindrone acetate, ethynodiol diacetate) are classified as estranes. Levonorgestrel and other progestins that metabolize to levonorgestrel (eg, norgestimate) are classified as gonanes. Desogestrel, which is metabolized to 3-keto-desogestrel, also is classified as a gonane. Drospirenone is a new progestin that is derived from 17 alpha-spirolactone. OCPs may be categorized as either monophasics (Table 2), which contain a constant amount of hormones, or multiphasics (Table 3), which vary the amount of progestin and sometimes estrogen over the course of a 21-day cycle. Most currently available OCPs consist of 21 days of hormonal pills followed by 7 days of placebo per 28-day cycle. OCPs prevent pregnancy by inhibiting gonadotropin-releasing hormone and, thus, ovulation. Other secondary mechanisms of contraception by OCPs include thickening of the cervical mucus, endometrial atrophy, and changes in tubal transport.

Most adolescents can take any OCP containing 35 mcg or less of ethinyl estradiol safely. Several studies have suggested that desogestrel-containing OCPs increase the risk of venous thromboembolism (VTE). Because this is one of the few serious complications of OCP use, some experts recommend avoidance of desogestrel. An OCP that contains 20 mcg of ethinyl estradiol should be used if the patient is a heavy smoker. For all other

Table 2. Monophasic Oral Contraceptives

Estrogen	Progestin	Brand Names
50 mcg mestranol	1 mg norethindrone	Necon 1/50[a] Norinyl 1+50[a]
50 mcg ethinyl estradiol	1 mg norethindrone	Ovcon-50[b]
50 mcg ethinyl estradiol	1 mg ethynodiol diacetate	Zovia 1/50E[a]
50 mcg ethinyl estradiol	0.5 mg norgestrel	Ovral[c] Ogestrel 0.5/50[a]
35 mcg ethinyl estradiol	1 mg norethindrone	Nortrel 1/35[d] Necon 1/35[a] Norinyl 1+35[a]
35 mcg ethinyl estradiol	0.5 mg norethindrone	Brevicon[a] Nortrel 0.5/35[d] Necon 0.5/35[a]
35 mcg ethinyl estradiol	0.4 mg norethindrone	Ovcon-35[b]
35 mcg ethinyl estradiol	0.25 mg norgestimate	Ortho-Cyclen[e]
35 mcg ethinyl estradiol	1 mg ethynodiol diacetate	Zovia 1/35E[a]
30 mcg ethinyl estradiol	1.5 mg norethindrone acetate	Loestrin Fe 1.5/30[f] Mirogestin Fe 1.5/30[a]
30 mcg ethinyl estradiol	0.3 mg norgestrel	Lo/Ovral[c] Cryselle[d] Low-Ogestrel[a]
30 mcg ethinyl estradiol	0.15 mg desogestrel	Desogen[g] Ortho-Cept[e] Apri[d]
30 mcg ethinyl estradiol	0.15 mg levonorgestrel	Nordette[h] Levlen[i] Levora 0.15/30[a] Portia[d]
30 mcg ethinyl estradiol	3 mg drospirenone	Yasmin 3/0.03[i]
20 mcg ethinyl estradiol	1 mg norethinedrone acetate	Loestrin Fe 1/20[f] Microgestin Fe 1/20[a]
20 mcg ethinyl estradiol	0.1 mg levonorgestrel	Alesse[c] Levlite[i] Aviane[d] Lessina[d]

[a] Watson Laboratories, Inc.
[b] Warner Chilcott
[c] Wyeth-Ayerst Pharmaceuticals
[d] Barr Laboratories, Inc
[e] Ortho-McNeil Pharmaceutical
[f] Parke-Davis
[g] Organon, Inc.
[h] Monarch
[i] Berlex Laboratories

patients, any OCP that contains 35 mcg or less of ethinyl estradiol is satisfactory. Newly released gonanes (eg, norgestimate) have fewer androgenic effects than many other protestins and are preferred if the patient has acne, hirsutism, or hyperlipidemia.

The two most important factors to consider in choosing an OCP for the healthy adolescent are cost and patient preference. For the adolescent who has a coexisting medical condition, the World Health Organization (WHO) has developed guidelines to help determine medical eligibility for OCP prescription (Table 4). Medical conditions are divided into four classifications or categories. WHO Category One encompasses conditions for which there are no restrictions for OCP use, including benign breast disease and the use of antibiotics. WHO Category Two includes conditions in which caution is suggested for OCP prescription, but the advantages usually outweigh potential disadvantages. Among the conditions in this category are moderate hypertension and uncomplicated diabetes mellitus. WHO Category Three disorders are conditions for which OCPs usually are contraindicated unless there are no other contraceptive methods available or acceptable. Included in this category are conditions that require treatment with drugs known to decrease contraceptive efficacy, such as hydantoins, barbiturates, and carbamazepine. Finally, WHO Category Four includes conditions in which OCPs should not be used, such as hypercoagulability disorders, pregnancy, and liver disease.

Unfortunately, many teens (and their parents) erroneously believe that OCPs are associated with numerous health risks. In fact, serious adverse reactions to OCPs are rare and are lower for women younger than 20 years of age than for any other age group. Indeed, the estimated risk of death from OCP use among teenagers is 1.3 per 100,000 users (0.3 per 100,000 for nonsmokers) compared with a risk of death in childbirth for this age group of 11.1 per 100,000 live births. In addition to preventing pregnancy, there are many noncontraceptive benefits of OCP use (Table 5). Discussing these noncontraceptive benefits with the adolescent may aid with compliance, especially if the teen feels she is at low risk for pregnancy. Most teens are "serially monogamous" and may decide to stop contraception when they end a sexual relationship. If they are aware of the noncontraceptive benefits of

Table 3. Multiphasic Oral Contraceptives

Product	Phase 1	Phase 2	Phase 3
Tri-Norinyl (Watson)	0.5 mg norethindrone, 35 mcg ethinyl estradiol (7 blue tablets)	1 mg norethindrone, 35 mcg ethinyl estradiol (9 yellow-green tablets)	0.5 mg norethindrone, 35 mcg ethinyl estradiol (5 blue tablets)
Ortho-Novum 7/7/7 (Ortho-McNeil Pharmaceutical)	0.5 mg norethindrone, 35 mcg ethinyl estradiol (7 white tablets)	0.75 mg norethindrone, 35 mcg ethinyl estradiol (7 light peach tablets)	1 mg norethindrone, 35 mcg ethinyl estradiol (7 peach tablets)
Tri-Levlen (Berlex Laboratories) TriPhasil (Wyeth-Ayerst Pharmaceuticals) Enpresse (Barr Laboratories, Inc)	0.05 mg levonorgestrel, 30 mcg ethinyl estradiol (6 brown tablets)	0.075 mg levonorgestrel, 40 mcg ethinyl estradiol (5 white tablets)	0.125 mg levonorgestrel, 30 mcg ethinyl estradiol (10 light yellow tablets)
Trivora (Watson Laboratories, Inc)	0.05 mg levonorgestrel, 30 mcg ethinyl estradiol (6 blue tablets)	0.075 mg levonorgestrel, 40 mcg ethinyl estradiol (5 white tablets)	0.125 mg levonorgestrel, 30 mcg ethinyl estradiol (10 pink tablets)
Ortho Tri-Cyclen (Ortho-McNeil Pharmaceutical)	0.18 mg norgestimate, 35 mcg ethinyl estradiol (7 white tablets)	0.215 mg norgestimate, 35 mcg ethinyl estradiol (7 light blue tablets)	0.25 mg norgestimate, 35 mcg ethinyl estradiol (7 blue tablets)
Estrostep Fe (Parke-Davis)	1 mg norethindrone acetate, 20 mcg ethinyl estradiol (5 white triangle tablets)	1 mg norethindrone acetate, 30 mcg ethinyl estradiol (7 white square tablets)	1 mg norethindrone acetate, 35 mcg ethinyl estradiol (9 white round tablets)
Cyclessa (Organon)	0.1 mg desogestrel, 25 mcg ethinyl estradiol (7 yellow tablets)	0.125 mg desogestrel, 25 mcg ethinyl estradiol (7 orange tablets)	0.15 mg desogestrel, 25 mcg ethinyl estradiol (7 red tablets)
Ortho Tricyclen Lo (Ortho-McNeil Pharmaceutical)	0.18 mg norgestimate, 25 mcg ethinyl estradiol (7 white tablets)	0.25 mg norgestimate, 25 mcg ethinyl estradiol (7 light blue tablets)	0.25 norgestimate, 25 mcg ethinyl estradiol (7 blue tablets)

the OCP, they will be more likely to continue the medication and, thus, be protected from the start of a new sexual relationship. For the adolescent, some of the most important noncontraceptive benefits are lighter and more predictable menses, decreased dysmenorrhea, and improvement in acne. Randomized, controlled studies have demonstrated improvement in acne in patients who were prescribed a multiphasic norgestimate/ethinyl estradiol OCP (OrthoTri-Cyclen [Ortho-McNeil Pharmaceutical]) and a norethindrone acetate/ethinyl estradiol OCP (Estrostep Fe [Parke-Davis]). OCPs may control acne as effectively as benzoyl peroxide, retinoic acid, and antibiotics (topical or systemic). Acne vulgaris lesions may decrease with OCP use due to decreased androgen production, reduced conversion of testosterone to dihydrotestosterone, and higher sex hormone-binding globulin levels.

Contrary to popular belief, a pelvic examination is not necessary before starting OCPs. Of course, a sexually active adolescent should have annual screening for cervical cancer and STIs, but these tests are not necessary prior to prescribing OCPs. If a pelvic examination is mandated prior to prescribing OCPs, many teens who fear this examination will delay seeking effective contraceptive services. Numerous professional organizations, including WHO, the American College of Obstetricians and Gynecologists, and the United States Agency for International Development, have stated that a pelvic examination is not necessary for safe use of OCPs. If a teen is not sexually active, OCPs can be prescribed indefinitely without mandating a pelvic examination. The sexually active teen should be counseled regarding the benefits of screening for cervical cancer and STIs and encouraged to have a pelvic examination. Many adolescent centers now allow the sexually active teen to defer the pelvic examination for up to 1 year. Using this approach, more than 80% of teens return for follow-up and obtain a pelvic examination within this time period. Establishing office practice guidelines for deferring the pelvic examination may increase the number of adolescents who receive efficacious contraception and allow busy physicians to incorporate contraceptive services into their primary care practice.

No laboratory tests are needed routinely prior to starting OCPs. To avoid inadvertently prescribing OCPs to a teen who already is pregnant, it is best to start OCPs

Table 4. World Health Organization Guidelines for Oral Contraceptive Pill (OCP) Use

Category One Do not restrict use of OCP	Category Two Use caution, but OCP advantages usually outweigh risks	Category Three OCPs usually not used unless there are no other acceptable alternatives	Category Four OCPs should not be used
Epilepsy	Sickle cell disease	Woman <2 d postpartum	Deep vein thrombosis/pulmonary embolism
Current use of antibiotics (except rifampin)	Moderate hypertension (<159/109 mm Hg)	Gallbladder disease	Hypercoagulability disorders
Cervical ectropian	Cervical cancer	Lactation (>6 wk to <6 mo postpartum)	Lactation (<6 wk postpartum)
Benign breast disease	Undiagnosed breast mass	Undiagnosed vaginal bleeding	Diabetes mellitus with complications
Thyroid disorders	Major surgery without prolonged immobilization	Taking medications that decrease OCP efficacy:	Severe hypertension (>160/110 mm Hg)
Pelvic inflammatory disease	Uncomplicated diabetes mellitus	Griseofulvin	Complicated congenital heart disease
Mild headache	Severe headaches	Rifampin	Breast cancer
Irregular menstrual bleeding	Mental retardation	Barbiturates	Surgery with prolonged immobilization
Sexually transmitted infections	Severe psychiatric disorders	Hydantoins	Migraine with focal neurologic deficits
Family history of breast cancer	Drug or alcohol abuse	Carbamazepine	Cerebrovascular disease
		Felbamate	Coronary artery disease
			Liver disease
			Pregnancy

on the Sunday after the beginning of the next menses or on the first day of the next menses. For the adolescent who has prolonged amenorrhea (eg, polycystic ovary syndrome), OCPs can be started at any time, but a pregnancy test should be obtained prior to initiation. The increased risk of VTE in OCP users who have prothrombotic mutations has led to questions about the value of screening for these mutations before OCPs are prescribed. However, even screening for the most common mutation, factor V Leiden, which occurs in 5% of the Caucasian population, is not cost-effective. Indeed, more than 500,000 women would need to be screened to avoid a single death.

OCP users should be advised to continue using condoms because OCPs do not prevent STIs. To improve compliance, the management of common minor adverse effects of OCPs, such as breakthrough bleeding and nausea, should be discussed when OCPs are prescribed. Because many patients occasionally forget to take a pill, they also should be advised on how to manage this occurrence. If they skip one pill, they should make it up as soon as they remember. If they skip two pills on consecutive days, they should be advised to take two pills for 2 days and use an additional method of contraception for the rest of the cycle.

Progestin-only Pills

Progesterone-only pills (POPs) are less efficacious than the combined OCPs because they do not inhibit ovulation reliably. They prevent conception by thickening cervical mucus and inducing endometrial atrophy. There also may be tubal motility changes. If estrogen is contraindicated or not tolerated, POPs may be an acceptable contraceptive alternative to OCPs, but because of their decreased efficacy, POPs usually are not recommended for adolescents. Because POPs do not inhibit ovulation, skipping even one pill or a delay of even a few hours in taking a pill can result in contraceptive failure. If an adolescent who is taking POPs is more than 3 hours late in taking her pill, she should employ a back-up method for the next 2 days.

Transdermal Hormonal Contraception

A contraceptive transdermal patch containing ethinyl estradiol and norelgestromin has been approved for use in the United States (Ortho Evra [Ortho-McNeil Pharmaceutical]). Norelgestromin is the primary active metabolite of norgestimate. Pharmacokinetic studies have shown that the daily absorption of ethinyl estradiol and norelgestromin is approximately 20 mcg and 150 mcg, respectively. The 20-cm^2 patches are left in place for

Table 5. Noncontraceptive Benefits of Oral Contraceptive Pills

Condition/Disease	Reduction Compared With Nonusers
Gynecologic Disorders	
Dysmenorrhea	63%
Menorrhagia	48%
Fibrocystic breast disease	50%
Ovarian cancer	40% to 80%[1]
Benign ovarian cysts	48% to 76%[2]
Uterine cancer	50%
Endometriosis	50%
Pelvic inflammatory disease	60%
Other Medical Disorders	
Rheumatoid arthritis	78%
Iron deficiency anemia	45%
Duodenal ulcer	40%
Colon cancer	37%
Acne	25%

[1] The risk of ovarian cancer is reduced by 40% with 3 to 6 months of oral contraceptive pill use and increases to 80% if used more than 10 years.
[2] The risk reduction is higher with higher-dose oral contraceptive pills.

7 days and replaced weekly for 3 weeks. No patch is used during the fourth week to allow menses to occur. The contraceptive patch provides efficacy, cycle control, and safety that is comparable to OCPs of similar dosage, and because the patches only need to be changed weekly, compliance is better than with OCPs. In clinical trials, women who weighed more than 200 lb (90 kg) had a statistically significant increased risk of pregnancy. Accordingly, they may not be ideal candidates for the patch. A small percentage of patients discontinued use due to local skin irritation.

Vaginal Hormonal Ring Contraception

A contraceptive vaginal ring containing ethinyl estradiol and etonogestrel (NuvaRing [Organon]) has been approved for use in the United States. Etonorgestrel is the biologically active metabolite of desogestrel. The ring is inserted into the vagina and left in place for 3 weeks. It is removed during the fourth week to allow menses to occur. After the fourth week, a new ring is inserted. The efficacy of the contraceptive ring is similar to that of OCPs. Because the ring can be left in place for 3 weeks, compliance may be better than with OCPs. There are few studies on the adverse effects of this contraceptive method, but generally they are expected to be similar to those of OCPs. The contraindications are the same as for OCPs. A small number of patients report leukorrhea and vaginal irritation.

Emergency Contraceptive Pills

Emergency contraceptive pills (ECPs) can be used to prevent pregnancy after unprotected intercourse or when regular contraceptive methods fail. Although ECPs have been prescribed for more than 30 years, few adolescents (and physicians) are aware of this option. The United States Food and Drug Administration (FDA) has approved two hormonal contraceptive methods specifically for emergency contraception. The Preven Emergency Contraceptive Kit (Gynetics, Inc) consists of four pills that each contain 0.25 mg of levonorgestrel and 50 mcg of ethinyl estradiol, a urine pregnancy test, and an information booklet. The first two pills are taken as soon as possible after unprotected intercourse, and the second two pills are taken 12 hours later. The other progestin-only method (Plan B [Women's Capital Corporation]) consists of two tablets that each contain 0.75 mg of levonorgestrel. The first pill is taken as soon as possible after unprotected intercourse, and the second pill is taken 12 hours later. A pregnancy test is not needed because this pill does not contain estrogen.

Although a single mechanism of action of ECPs has not been established, they most likely work by inhibiting or delaying ovulation. ECPs do not interrupt an implanted pregnancy, and there is no evidence that ECPs increase the risk of ectopic pregnancy. OCPs at increased dosage, taken at a 12-hour interval, also can be used for emergency contraception. The number of pills that need to be taken varies with the composition of the OCP.

Several factors complicate the calculation of efficacy (failure rate) of ECPs, including when intercourse occurred in the menstrual cycle and how soon after intercourse the ECP was taken. Conception can occur each of the 5 days before and on the day of ovulation. For all ECPs, taking the first pill(s) as soon as possible after unprotected intercourse increases efficacy. Although ECPs generally are not prescribed if more than 72 hours have elapsed since unprotected intercourse, recent studies have shown that at least the progestin-only method may decrease the risk of pregnancy if taken up to 5 days after unprotected intercourse. ECPs decrease the risk of pregnancy by approximately 75%. This 75% reduction does not translate into a pregnancy rate of 25% because there is only an 8% chance of becoming pregnant from one episode of intercourse during the middle 2 weeks of the menstrual cycle. Thus, by taking ECPs as directed, the risk of pregnancy is reduced to 2% (a 75% reduction). The progestin-only method appears to be more effective

in preventing pregnancy than the combination-pill method. In randomized, double-blind studies, the progestin-only method decreased the expected pregnancy rate by 95% if taken within 24 hours and 85% if taken between 24 and 48 hours. The most common adverse effect of ECPs is nausea, which is less likely to occur if a progestin-only method is used because it does not contain estrogen. There is no evidence of adverse effects on a fetus if ECPs are administered inadvertently to a woman who already is pregnant.

Because adolescent sexual activity often is sporadic and unplanned, increased knowledge and availability of ECPs may help reduce the number of unwanted teen pregnancies. Some states now allow pharmacists to dispense ECPs without a prescription, and many major medical organizations have petitioned the FDA to allow the progestin-only method to be sold without prescription.

Injectable Hormonal Contraceptives

Depo-medroxyprogesterone acetate (DMPA) is a highly effective progesterone-only contraceptive (Table 1) that is administered intramuscularly every 3 months. Because many adolescents find it difficult to take a pill every day, this method is an excellent alternative to OCPs. DMPA prevents pregnancy by inhibiting ovulation. The first injection is administered during the menses. The only contraindication to DMPA is pregnancy. The most common adverse effect is menstrual changes. Amenorrhea is common, and some patients (especially adolescents) view this as a benefit. Approximately 40% of patients have amenorrhea during the first 3 months of use and 60% by 12 months. Unfortunately, self-limited irregular menstrual bleeding also may occur and is one of the most common reasons that teens discontinue use of DMPA. There are conflicting reports about weight gain with DMPA, but many teens have heard that this method causes weight gain and may be reluctant to take it because of this. In one study of 13- to 19-year-old girls, the average weight gain in the first year of use was 4.4 lb (2.1 kg). However, teens should be counseled that there are no calories in DMPA and that weight gain, thus, is due to increased caloric intake or decreased caloric expenditure. Appropriate counseling regarding weight management can enhance the use of DMPA by adolescents and increase continuation rates.

DMPA may decrease bone mineral density (BMD), and because up to 60% of bone mass is acquired during adolescence, there is concern that the use of DMPA in adolescence may increase the risk of osteopenia and osteoporosis in later life. In one small study of adolescents receiving DMPA, there was a 1.5% decrease in BMD after 1 year and a 3.1% decrease over 2 years in contrast to a 2.9% increase at 1 year and a 9.5% increase at 2 years in controls. There is some evidence that BMD increases again after DMPA has been discontinued. Until more research clarifies this issue, DMPA probably should not be used by patients at risk for osteoporosis, such as teens who have chronic renal disease or anorexia nervosa.

A monthly injectable hormonal contraceptive containing 5 mg estradiol cypionate and 25 mg medroxyprogesterone acetate (Lunelle [Pharmacia & Upjohn]) has been approved by the FDA. This formulation and other similar combined injectable contraceptives have been used successfully in other countries for many years. The adverse effects and contraindications are similar to those of OCPs. Because this injectable contraceptive contains estrogen, BMD is not affected and menses are regular. Because this method requires a monthly injection, it may not be popular with teens. However, it is a good option for teens who cannot remember to take OCPs and wish to avoid the adverse effects of DMPA.

It should be remembered that 85% of sexually active women become pregnant within 1 year if no contraception is used. . . .

Vaginal Barrier Contraceptives

Barrier contraceptives currently available in the United States include the diaphragm, cervical cap, and female condom. These methods are not popular with adolescents, who often are uncomfortable about inserting them into the vagina. The typical adolescent requires a diaphragm that is 60 to 80 mm. The female condom is a polyurethane bag or sheath that fits into the vagina prior to coitus. It has two rings—one placed inside and one outside the vagina—and is available without a prescription. Studies have shown that this method can offer some protection from STIs in the adolescent female whose partner will not use a condom. Vaginal spermicides are recommended with these and other barrier methods (eg, male condoms) to improve efficacy. The most common

spermicide in these products is nonoxynol-9, a chemical surfactant that destroys the sperm cell wall.

Male Condoms

All adolescents should be encouraged to use condoms because they provide some protection against STIs. Latex condoms are recommended because they offer superior protection from STIs over "natural" (eg, lamb cecum) condoms. If a male partner refuses to use a condom, a female barrier may be used, but male condoms may reduce STI rates more than diaphragms. Improved education about condoms and fear of STIs has led to greater use of condoms by adolescents over the past decade. A polyurethane condom is now available and can be used by the adolescent who has a latex allergy. This condom is stronger and thinner than latex condoms, but it also is much more expensive.

Intrauterine Device

Intrauterine devices (IUDs) are a highly effective, long-acting method of contraception. The contraceptive action is primarily on the uterine cavity. IUDs are believed to create a uterine environment that is spermicidal. Ovulation is not affected. Progesterone-releasing IUDs also thicken cervical mucus and may inhibit implantation. Adolescents rarely are good candidates for IUD placement because this method should be used only by women who have a mutually monogamous sexual relationship, and the manufacturers recommend that they not be used by nulliparous women.

Summary

More than 90% of adolescent pregnancies are unintended, and approximately 50% of all pregnancies occur within the first 6 months of initiating sexual activity. By providing appropriate anticipatory guidance, the pediatrician can help to decrease the adolescent pregnancy rate. It should be remembered that 85% of sexually active women become pregnant within 1 year if no contraception is used, and even some of the least effective contraceptive methods markedly decrease the risk of pregnancy.

Suggested Reading

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PIR Quiz

Quiz also available online at *www.pedsinreview.org.*

10. You are counseling medical students about the risks of teen pregnancy and the use of contraception. Which of the following statements are you *most* likely to include in your discussion?

    A. Adolescents should be counseled that oral contraceptives are the safest and most effective method of preventing pregnancy.
    B. Adolescents typically seek advice on contraceptive methods before they become sexually active.
    C. Discussions about sexual activity should begin in early adolescence.
    D. More than 50% of all teen pregnancies occur within 1 month of initiating sexual activity.
    E. Teens who are abstinent do not require counseling on contraception during their health supervision visits.

11. During a health supervision visit, a 15-year-old girl reports occasional sexual activity and asks about her options for contraception. You remember that younger women are at highest risk for contraception failure because of noncompliance. Which of the following methods would put her at the *lowest* risk of pregnancy?

    A. Diaphragm with nonoxynol-9 spermicide.
    B. Female condom.
    C. Medroxyprogesterone acetate injection.
    D. Progestin-only pill.
    E. Vaginal spermicides.

12. Which of the following is an absolute contraindication to the use of oral contraceptive pills?

    A. Cervical cancer.
    B. Family history of breast cancer.
    C. Migraine with focal neurologic deficits.
    D. Sickle cell disease.
    E. Thyroid disorders.

13. You are seeing a 16-year-old girl for a health supervision visit. She currently is abstinent but asks you about her contraception options should she become sexually active. Which of the following statements regarding the types of contraception is *true*?

    A. A pelvic examination should be performed before she begins any hormonal form of contraception.
    B. Oral contraceptive pills offer several noncontraceptive benefits, such as lighter menses and improvement of acne.
    C. Progestin-only pills are desirable for adolescents because up to two pills per month may be missed without increasing the risk of pregnancy.
    D. The most common adverse effect of intramuscular depo-medroxyprogesterone acetate is weight gain.
    E. The transdermal patch is less effective than oral contraceptives in most women.

14. A 15-year-old girl presents to the emergency department 1 day after an unprotected sexual encounter. She asks you about emergency contraception and the prevention of pregnancy from this experience. Which of the following should you tell her?

    A. A pregnancy test always should be preformed before treatment with emergency contraceptive pills is initiated.
    B. Combination pills are more effective in preventing pregnancy than progestin-only pills.
    C. Emergency contraceptive pills are only 25% effective in preventing pregnancy if taken 1 day after unprotected intercourse.
    D. Fetal demise is likely if emergency contraceptive pills are administered to a woman who already is pregnant.
    E. The first pill should be administered as quickly as possible to decrease the risk of pregnancy.

Counseling the Adolescent About Contraception

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