Prevention of Adolescent Pregnancies

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5.1 Introduction

Adolescent sexuality and reproductive health refers to adolescent pregnancies, termination of undesired pregnancies, contraception for adolescents, prevention and treatment of sexually transmitted diseases (STDs), and other gynecological pathologies [1].

Worldwide data presents that 56 % of girls and 73 % of boys have had sexual intercourse before the age of 18. Worldwide 27 % and in developed countries 7.5–10 % of adolescent women get pregnant. 52 % of adolescents use noneffective contraception, and 31 % of adolescents used no contraception at first intercourse, mostly those who had just met their sexual partner [2–4].

The adolescent pregnancy rate is as high as 97/1,000 women aged 15–19. Approximately 49 % of these pregnancies are unintended (45/1,000 women unintended pregnancy rate in the USA, the highest of industrialized nations). From the patients who had an unintended pregnancy only 42 % used contraception [5].

Adolescence special needs for contraception are related to the frequency of sexual intercourse, STDs, the fear of consultation, and the inadequate information provided to teenagers and the family. 31 % of adolescents used no contraceptive method at first intercourse, mostly those who had just met their sexual partner [2, 3].

Table 5.1 presents the contraceptive methods (CMs) used during adolescence.

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Table 5.1 CMs for adolescents

Hormonal	Nonhormonal
COCs	The condom
Emergency contraception	The double dutch method *(COCs and condom)*
LARCs	Others[a]
Injectable contraception	Sponge and diaphragm
IUDs	Abstinence
Implants	Withdrawal
Patches	Periodic sexual intercourse
Vaginal rings	

COCs combined oral contraceptives, *LARCs* long-acting reversible contraceptive methods, *IUDs* intrauterine devices
[a]Not recommended

Table 5.2 Noncontraceptive beneficial effects of 17 β-estradiol COCS

Ovarian cysts, premenstrual tension, ectopic pregnancies
Endometrial, epithelial ovarian cancer and colorectal cancer
Menstrual disorders: dysfunctional uterine bleeding, dysmenorrheal oligomenorrhea
Endometriosis
Pelvic inflammatory disease, dyspareunia, chronic pelvic pain
Bone mass
Polycystic ovarian syndrome: acne and hirsutism
Lipid and carbohydrate profile, thyroid, hemostatic and inflammation makers, liver function
Ovarian stimulation (pretreatment)

5.2 Oral Contraceptives

Among the new generation COCs, those with estradiol or estradiol valerate together with the new progestagenic compounds are recommended [6].

If COCs are used properly, their failure rate is less than 1 %, while the typical failure rate is approximately 3 % in adults and 5–15 % in adolescents [6, 7]. On the other hand the noncontraceptive benefits of the new generation COCs should be emphasized to improve compliance during adolescence (Table 5.2) [8, 12].

The COCs side effects are the most commonly reported reasons why adolescents discontinue this method. COCs users discontinued their use because of sexually transmitted infections, the fear for breast and cervical cancer, as well as the venous thromboembolism.

Teens should be advised that COCs are only effective if taken regularly. Another contraceptive method should be followed if more than two consecutive pills are missed in any menstrual cycle. In any case, sexually active adolescents always should be advised to use condoms, even while taking COCs.

5.3 The Condom

The condom should be consistently used during adolescence preferably in combination with COCs (the double dutch method) as a method of providing complete protection against unwanted pregnancies and STDs. The condom is easily available and inexpensive, presents no side effects, and has an effectiveness of up to 88% [13].

5.4 Emergency Contraception

The emergency contraceptive methods are listed below [13–14]:

- The combined "estrogen and progestin" emergency contraception (EC) kit. The kit contains four tablets of ethinyl estradiol and levonorgestrel.
- The progestin-only product. Two tablets of levonorgestrel, to be taken 12 h apart.
- A single dose of RU-486 – mifepristone. A progesterone blocker, which acts as an abortifacient given within 72 h of coitus with nearly of 100 % success rate.
- A 19-nor-progestagenic derivative given within 5 days after coitus, acting as endometrial progestagenic modulator.

The situations that call for the use of EC are:

- No contraception used
- Condom breakage, slippage, or incorrect use
- Three or more consecutive missed COCs
- Progestogen-only pill (minipill) taken more than 3 h late
- More than 2 weeks late for a progestogen-only contraceptive injection
- Breakage, dislodgment, tearing, or early removal of a diaphragm or a cervical cap
- Failed coitus interruptus
- Failure of a spermicidal tablet
- Expulsion of an intrauterine device
- Miscalculation of the periodic abstinence method
- Sexual assault (woman not protected by a contraceptive method) [10, 11]

5.5 Long-Acting Reversible Contraceptives

LARC's (Table 5.1) are very useful methods for the prevention of adolescent pregnancies. LARC's are also recommended for the prevention of unwanted pregnancies in young women with special needs.

5.5.1 The Injectable Contraception

The injectable contraception (DMPA depot-medroxyprogesterone acetate) is an effective contraceptive agent and it is given intramuscularly every 12–13 weeks. The failure rate is 0.3 % [15].

5.5.2 The Levonorgestrel IUDs

The levonorgestrel IUDs cause reversible atrophy of the endometrium. The new mini IUDs are preferable.

5.5.3 The Implants

"The implants" is an alternative method not recommended for adolescents. The effective life varies from 6 to 84 months [16–17].

5.5.4 The Patch

The contraceptive patches have a convenient application schedule: "3 weeks ON, 1 week OFF." Its delivery system offers continuous doses of estrogen and progesterone. It is also not in common use by adolescents.

5.5.5 The Vaginal Ring

The contraceptive ring has also a convenient schedule of 3 weeks IN 1 week OUT. The ring delivers combined-continuous doses of estrogen and progesterone. The pregnancy rates are decreased. A backup contraception is needed if the ring is removed for more than 3 h. The side effects and the bleeding profiles are comparable to COCs [13, 18]. Merki-Feld and Hund [19] reported the main advantages of Nuvaring ® mentioned by a young group of users.

Conclusions

Consultation for adolescents should be provided by the family and health-care professionals in pediatric and adolescent gynecological units and family planning centers. Adolescents spend 17–20 h per week viewing TV or Internet. Numerous studies illustrate the television's powerful influence on adolescents sexual attitudes and beliefs, while the Internet predisposes to early sexual activity [20].

The future goals for the new contraceptive methods are the safety and their long-acting effect, the efficacy the protection against STDs, as well as the reversibility and the accessibility of the method.

References

1. Creatsas G, Deligeoroglou E (2009) Pediatric, adolescent & young adult gynecology. In: Altchek A (ed) Contraception in adolescence, Wiley-Blackwell Publ, Oxford, England p 299–307
2. Paukku M, Quan J, Darney P, Raine T (2003) Adolescents' contraceptive use and pregnancy history: is there a pattern? Obstet Gynecol 101(3):534–538
3. Manning WD, Longmore MA, Giordano PC (2000) The relationship context of contraceptive use at first intercourse. Fam Plann Perspect 32(3):104–110
4. American Academy of Pediatrics (2001) Committee on public education. Pediatrics 107(2):423–426
5. Strickland G, Lara-Torre E, Kives SL (2005) What's new in adolescent contraception: what residents and teachers need to know. J Pediatr Adolesc Gynecol 18(2):133–135
6. Alsina JC (2010) After 50 years of ethinylestradiol, another oestrogen in combined oral contraceptives. Eur J Contracept Reprod Health Care 15(1):1–3
7. Greydanus DE, Lonchamp D (1990) Contraception in the adolescent. Preparation for the 1990s. Med Clin North Am 74(5):1205–1224
8. Kohler G, Faustmann TA, Geringer C, Seitz C, Mueck AO (2010) A dose-ranging study to determine the efficacy and safety of 1, 2 and 4mg of dienogest daily for endometriosis. Int J Gynaecol Obstet 108:21–25
9. Tolaymat LL, Kaunitz AM (2009) Use of hormonal contraception in adolescents: skeletal health issues. Curr Opin Obstet Gynecol 21(5):396–401
10. Baro F, Weiss H, Peters K, Ricciotti N (2014) Metabolic profiles in phase 2 study of two 21/7 oral contraceptives regiments (±7 hormone free days) Obstet Gynecol Suppl 1:1065–1069
11. Mansour D, Verhoeven C, Sommer W, Weisberg E, Taneepanichskul S, Melis GB, Sundström-Poromaa I, Koerver T. (2011). Efficacy and tolerability of a monophasic combined oral contraceptive containing nomegestrol acetate and 17 β-oestradiol in a 24/4 regimen, in comparison to an oral contraceptive containing ethinylestradiol and drospirenone in a 21/7 regimen. Eur J Contracept Reprod Health Care 16(6):430–443
12. Ott MA, Adler NE, Millstein SG, Tschann JM, Ellen JM (2002) The trade-off between hormonal contraceptives and condoms among adolescents. Perspect Sex Reprod Health 34(1):6–14
13. Croxatto HB, Fernandez SD (2006) Emergency contraception – a human rights issue. Best Pract Res Clin Obstet Gynecol 20(3):311–322
14. Gupta V, Goldaman RD (2005) Emergency contraceptive options available for adolescents. Can Fam Physician 52(10):1219–1220
15. Beksinska ME, Smit JA, Kleinschmidt I, Milford C, Farley TM (2010) Prospective study of weight change in new adolescent users of DMPA, NET-EN, COCs, nonusers and discontinuers of hormonal contraception. Contraception 81(1):30–34
16. Creatsas G, Deligeoroglou E (2006), Contraception in adolescents. In: Milsom I (ed) Contraception and family planning. Elsevier, NY, USA, pp 133–142
17. Croxatto HB (2002) Mechanisms that explain the contraceptive action of progestin implants for women. Contraception 65(1):21–27
18. Falah-Hassani K, Kosunen E, Shiri R, Rimpelä A (2010) The use of the vaginal ring and transdermal patch among adolescent girls in Finland. Eur J Contracept Reprod Health Care 15(1):31–34
19. Merki-Feld GS, Hund M (2007) Clinical experience with NuvaRing in daily practice in Switzerland: cycle control and acceptability among women of all reproductive ages. Eur J Contracept Reprod Health Care 12(3):240–247
20. Brown JD, Greenberg BS, Buerkel-Rothfuss NL (1993) Mass media, sex and sexuality. Adolesc Med 4(3):511–526