Emergency Contraceptives

CHANDRIKA RAO[1] AND NIMRAT SANDHU[1]

From [1]Department of Paediatrics, MS Ramaiah Medical College, Bangalore, Karnataka
Correspondence: Dr Chandrika Rao, Professor, Department of Paediatrics,
MS Ramaiah Medical College, Bangalore, Karnataka, India.
chandrikadoc@gmail.com

Emergency contraceptives are indicated in adolescents as an 'emergency' birth control method after sexual assault or an unprotected intercourse or failure of 'routine' method of contraception. It does not protect against sexually transmitted infections or future pregnancies, when usual birth control methods are not used. It has few side effects and follow up visits are indicated in specific circumstances.

Key words: *emergency contraceptives, pregnancy*

Contraception is the deliberate use of artificial methods or other techniques to prevent pregnancy as a consequence of sexual intercourse. The major forms of artificial contraception are the barrier methods, the contraceptive pill and intrauterine devices and sterilisation.

EMERGENCY CONTRACEPTION

Emergency contraception (EC) refers to methods that can be used to prevent pregnancy after sexual intercourse. These are recommended for use within 5 days of the intercourse. They are more effective, if they are used soon after intercourse. EC can prevent up to over 95% of pregnancies when taken within 5 days after intercourse.

Intra Uterine device (IUD)s are considered the most effective form of EC. Oral regimens include Ulipristal acetate as the most effective oral regimen (ACOG 2017), levonorgestrel or combined oral contraceptives (COCs) consisting of ethinylestradiol plus levonorgestrel

INDICATIONS FOR EMERGENCY CONTRACEPTION

These include:

When no contraceptive has been used.

Sexual assault

When there is concern of possible contraceptive failure, from improper or incorrect use, such as [1]

- condom breakage, slippage, or incorrect use;
- 3 or more consecutively missed combined oral contraceptive pills;
- more than 3 hours late from the usual time of intake of the progestogen-only pill (minipill), or more than 27 hours after the previous pill;
- Dislodgment, breakage, tearing, or early removal of a diaphragm or cervical cap;
- Failed withdrawal
- Failure of a spermicide tablet or film to melt before intercourse;
- Miscalculation of the abstinence period, or
- Expulsion of an IUD or hormonal contraceptive implant.

MECHANISM OF ACTION

Oral emergency contraceptives work primarily by delaying ovulation. Copper intrauterine contraception inhibits fertilization by affecting sperm viability and function [2,3]. The copper device also has post fertilization contraceptive effects. The various postulated mechanisms depending on the phase of cycle are inhibition or delay of ovulation when used prior to ovulation, thickening of cervical mucus resulting in trapping of sperms, direct inhibition of fertilization, histological and biochemical alterations in the endometrium leading to impaired inhibition or delay of ovulation, alteration in the transport of egg, sperm, or embryo, interference with corpus luteum function and luteolysis [4,5].

Both oral and intrauterine emergency contraceptives are only effective before implantation. They are ineffective once implantation has occurred.

ORAL EMERGENCY CONTRACEPTION

The various oral emergency contraceptives are listed in Table 1

TABLE1: ORAL EMERGENCY CONTRACEPTIVES

Method	Dose	Timing of use after unprotected intercourse	Reported efficacy
Levonorgestrel	0.75 mg given twice, 12 hours apart or 1.5 mg given as a single dose	Up to 3 days (72 hours)	59 to 94 percent of pregnancies prevented
Estrogen plus progesterone (Yuzpe regimen)	100 to 120 micrograms ethinylestradiol plus 500 to 600 micrograms levonorgestrel in each dose, given twice, 12 hours apart	Up to 5 days (120 hours)	47 to 89 percent of pregnancies prevented
Mifepristone	Single 600 mg dose	Up to 5 days (120 hours)	99 to 100 percent
Copper intrauterine device	Inserted within 120 hours after intercourse	Up to 5 days (120 hours)	At least 99 percent
Ulipristal	Single oral dose of 30 mg	Up to 5 days (120 hours)	98 to 99 percent

Levonorgestrel (LNG) was associated with a lower rate of side effects, including nausea, vomiting, headache, and breast tenderness [4].

Antiprogestins namely ulipristal(UPA) and mifepristone act as antiprogestins are highly effective for emergency contraception [6]. Their primary mechanism of action is delay of ovulation. [7] A disadvantage of antiprogestins is that the delay in ovulation results in a delay in subsequent menses, which may provoke anxiety about possible pregnancy.

Mifepristone is as or more effective than other oral emergency contraceptives. The optimum dose has not been determined, but is probably 25 to 50 mg. In most series, mifepristone was associated with a low incidence of side effects. Gestrinone, a synthetic steroid with mixed progestogen and antiprogestogen effects, appears to be as effective as mifepristone.

COPPER INTRAUTERINE CONTRACEPTION

Copper intrauterine contraception (IUD) [2,3] is the most effective method of emergency contraception. Advantages of this method are that it provides continuing contraception after initial IUD placement, is more effective than oral regimens, especially in overweight/obese women, and is well tolerated, with one-year continuation rates of 60 percent. Copper IUDs are also highly cost effective when used for emergency contraception.

There is evidence in the professional literature that would support insertion of the Cu-IUD for EC in adolescents. A retrospective case review of emergency Cu-IUD use in 103 women aged 13–19 years found that the vast majority of insertions were straightforward; 96 insertions were rated as 'easy' or 'average' and only one insertion failed. Twenty-seven (26%) women had their device removed after their next menstrual period due to pain and bleeding and two because of partial expulsion.

Intrauterine contraception should be avoided in adolescents known to have current gonorrhea or chlamydial infection or found to have acute cervicitis during examination, because of the increased risk of pelvic inflammatory disease. In the absence of other medical contraindications, there is no contraindication to inserting the IUD on the same day that the patient presents for emergency contraception.

INVESTIGATIONAL DRUGS

Prostaglandin inhibitors (COX-1 and COX-2 inhibitors) appear to interfere with several essential steps in female reproduction, including oocyte maturation and ovulation. [8,9]. Use of these drugs for emergency contraception is investigational. Safety and efficacy data is awaited.

Meloxicam (15 mg) plus levonorgestrel (1.5 mg) resulted in a significantly higher proportion of cycles with no follicular rupture within five days than treatment with placebo plus levonorgestrel [10] .

SIDE EFFECTS

Side effects from the use of oral EC are nausea and vomiting, slight irregular vaginal bleeding and fatigue. Side effects are usually mild, and normally resolve without further medications.

If vomiting occurs within 2 hours of taking a dose, the dose should be repeated. ECPs with LNG or with UPA are preferable to combined oral contraceptives because they cause less nausea and vomiting. It is not recommended to take an antiemetic before taking EC.

Drugs used for emergency contraception and IUDs do not affect future fertility. [11,12].

EMERGENCY CONTRACEPTIVE PILLS IN INDIA

Below are the most common and highly selling emergency contraceptive pill brands in India.

1. I pill Emergency Contraceptive Pill: It contains the hormone levonorgestrol. The success rate of I pill is about 80-90%. It is priced at Rs.75/-

2. Unwanted 72: It is devoid of estrogen which generally makes it free from gastrointestinal upsets and nausea. It is priced Rs. 80/- for a single pill.

3. Preventol: This contraceptive pill is manufactured by Hill Life Care Ltd. and consists of two pills containing 0.75 mg of hormone levonorgestrol. First pill should be consumed as early as possible after unprotected sex and second pill should be taken 12hours after taking the first pill. It is priced Rs. 50/-

4. Truston 2: It is a pack of two tablets manufactured by V Care Pharma Ltd. First pill should be consumed soon after the unprotected sex, preferably within 24 hours and the second pill should be consumed after 12 hours. Price: These tablets cost Rs. 60/-.

5. Nextime pill: It should be consumed within 72 hours of unprotected sex and contains 1.5mg of levonorgestrol. Price: Rs. 49/-

6.Clr-72: It is a single pill oral contraceptive which should be consumed within 72 hrs of unprotected intercourse.Is manufactured by Vardhman Life care pvt.Ltd. It is priced for Rs.78/-

7. Tpill-72: It contains 1.5mg of levonorgestrol. Tpill 72 should be consumed in single dose within 72 hours of unprotected sex. The pill is priced for Rs. 69/-

8. No-will pill: The pill should be consumed within 24 hours of unprotected sex in a single dose. It is priced for Rs.75

PRESCRIBING EMERGENCY CONTRACEPTIVES IN CLINICAL PRACTICE

At the time of prescribing EC, the provider should follow the GATHER approach for counselling. Ensuring confidentiality and privacy is crucial for all counselling sessions.

G - Greet - Greet the client. Build a rapport with client by greeting the client and making her feel comfortable.

A - Ask - Ask questions effectively in a friendly manner using words that client understands and listen patiently, without being judgmental. Identify client needs by asking relevant questions about personal, social, family, medical and reproductive health including reproductive tract infections, sexually-transmitted diseases, family planning goals and past/ current use of family planning methods.

T - Tell - Tell the relevant information to help her make an

informed choice regarding method of EC and ongoing contraception method.

H - Help - Help the client to reach a decision and give other related information e.g. how to protect herself from STIs.

E - Explain - Explain about the method in detail including information that it protects against a 'single act', its efficacy, potential side-effects and the need for follow-up in case period is delayed by more than 7 days.

R - Return - Return for ongoing contraceptive method is advised and need for follow-up is emphasized if the period is delayed beyond 7 days.

The following protocol is carried out before prescription:

During history - taking, the focus is on the following points:

date of last menstrual period

average length of menstrual cycle

timing of all acts of unprotected intercourse in relation to the current cycle to calculate the risk of pregnancy

number of hours since the first episode of unprotected intercourse

current or recent use of contraception for planning future ongoing contraception

medical history relevant to EC use and to decide the chosen method of ongoing contraception including history of recent STI.

During examination, blood pressure check-up and assessment for anaemia is done. Pelvic examination is not mandatory except in cases of sexual assault.

Urine pregnancy test must be done if pregnancy is suspected.

Screening for sexually transmitted infections should be done in high risk cases.

FOLLOW-UP

Indications for immediate follow up include the following:

1. If the menstruation has been delayed for more than one week from the expected date
2. If there is lower abdominal pain and heavy bleeding
3. If the subsequent period is unusually light, heavy, short or absent.

Figure 1 summarises the clinical practice points for prescribing EC

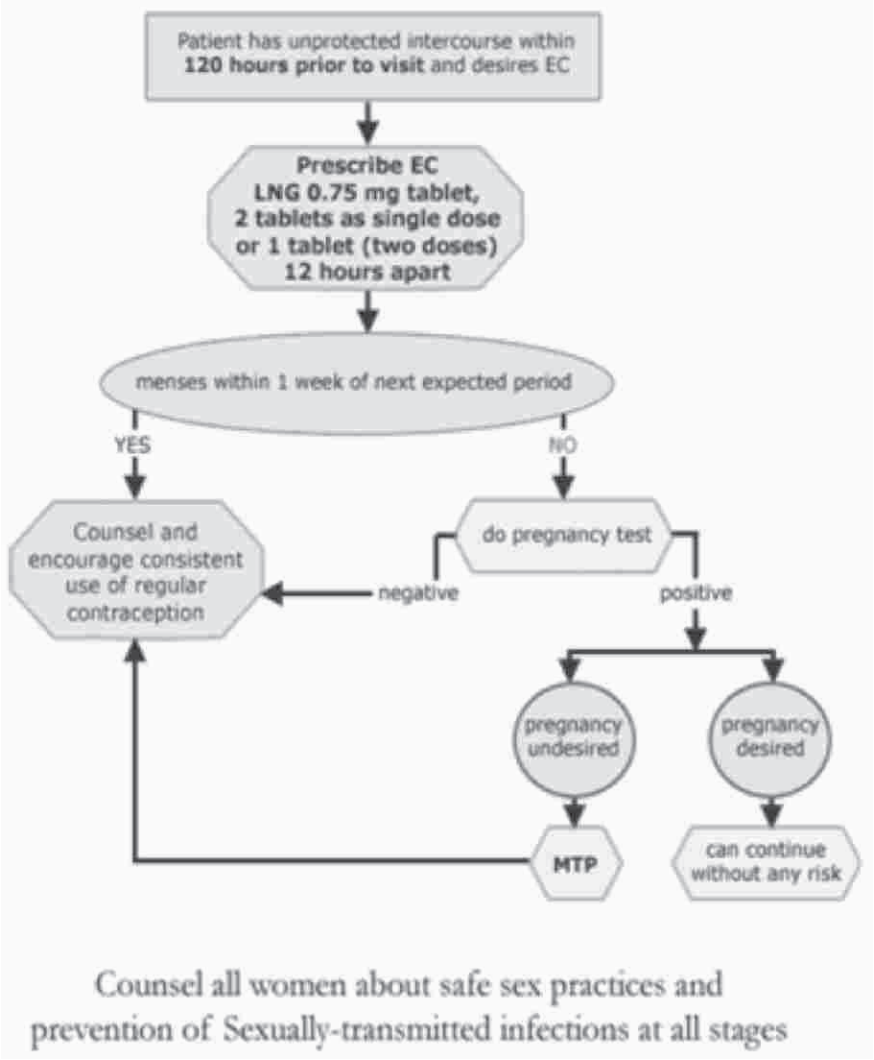

Figure1: Oral emergency contraceptives in practice
Source: India Specific website-ecindia.org

CONCLUSION

Emergency contraception is indicated for adolescents who have had recent unprotected intercourse (including sexual assault), or in those who have had a failure of another method of contraception (eg, broken condoms, or have been late for their depot-medroxyprogesterone injections). There are no medical contraindications to use of oral EC. It should be administered as soon as possible, but up to 120 hours, after an episode of unprotected intercourse.For women who choose hormonal emergency contraception, levonorgestrel is more effective and has fewer side effects than estrogen-progestin therapy. Women using emergency contraception pills should be advised that a risk of pregnancy still exists if they have unprotected sexual intercourse after emergency contraception pills have been taken. Adolescents in need of birth control, should begin regular use of nonemergency contraception, the day after emergency contraception administration.

REFERENCES

1. International Institute of Population Sciences. Family Planning and Contraceptive use. National Family Health Survey (NFHS-1) 1995-96. Chhabra R, Nuna S, Abortion in India: An Overview. New Delhi; Veerandra Publishers 1993.

2 Mechanisms of action of intrauterine devices: Update and estimation of postfertilization effects. Stanford JB, Mikolajczyk RT. Am J Obstet Gynecol. 2002;187(6): 1699.

3. Cleland K, Zhu H, Goldstuck N, et al. The efficacy of intrauterine devices for emergency contraception: A systematic review of 35 years of experience. Hum Reprod 2012; 27:1994.

4.Contraceptive efficacy of emergency contraception with levonorgestrel given before or after ovulation. NoéG, Croxatto HB, Salvatierra AM, Reyes V, Villarroel C, Muñoz C, Morales G, Retamales A. Contraception. 2011 Nov;84(5):486-92. Epub 2011 Apr 27.

5. Immediate pre-ovulatory administration of 30 mg ulipristal acetate significantly delays follicular rupture. Brache V, Cochon L, Jesam C, Maldonado R, Salvatierra AM, Levy DP, Gainer E, Croxatto HB. Hum Reprod. 2010;25(9):2256. Epub 2010 Jul 15.

6. Effectiveness of levonorgestrel emergency contraception given before or after ovulation--a pilot study. Novikova N, Weisberg E, Stanczyk FZ, Croxatto HB, Fraser IS. Contraception. 2007 Feb;75(2):112-8. Epub 2006 Oct 27.

7. Emergency contraception -- mechanisms of action. Gemzell-Danielsson K, Berger C, P G L L. Contraception. 2013 Mar;87(3):300-8. Epub 2012 Oct 29.

8. Practice Bulletin No. 152: Emergency Contraception. Obstet Gynecol. 2015;126(3): e1.

9. Shen J, Che Y, Showell E, et al. Interventions for emergency contraception. Cochrane Database Syst Rev 2019; 1:CD001324.

10. Glasier A. Emergency contraception: clinical outcomes. Contraception 2013; 87:309.

11. Wu S, Godfrey EM, Wojdyla D, et al. Copper T380A intrauterine device for emergency contraception: a prospective, multicentre, cohort clinical trial. BJOG 2010; 117:1205.

12. Mittal S. Interventions for emergency contraception: RHL commentary (last revised: 1 November 2008). The WHO Reproductive Health Library; Geneva: World Health Organization.