

# SCIENTIFIC REVIEWS

## MORNING-AFTER PILL

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### INTRODUCTION:

Morning after pill is one of the emergency contraception methods. It is a drug used after unprotected or inadequately protected acts of sexual intercourse to prevent unwanted pregnancies (1). It is thus a method used after the coitus and before pregnancy appears and hence not abortifacient.

Research on post-coital use of contraceptives began in 1960s. The first oral regimen which was used was published in 1974 by Yuzpe and colleagues (2).

The use of emergency contraception is largely underutilised worldwide. In developing countries, lack of knowledge and access to emergency contraception may result in women resorting to unsafe abortions which contribute significantly to maternal morbidity and mortality (2).

### TYPES OF EMERGENCY CONTRACEPTION (EC) AVAILABLE:

There are mainly divided into two groups

1. hormonal emergency contraception
2. Intra-Uterine Device for emergency contraception.

#### 1. HORMONAL EMERGENCY CONTRACEPTION:

These are oral regimens which use hormones progesterone and estrogens. There are about four types of hormonal emergency contraception

#### Combined emergency contraceptive pill CEC (Yuzpe method)

This contains a combination of hormones, progesterone and oestrogen. Each pill contains

100micrograms of ethinylestradiol and 0.5mg of levonogesterol.

#### How to use:

An individual is required to take one tablet soon after coitus and another tablet 12 hours after the first pill is taken. These pills cut the chances of becoming pregnant by 75% (3).

#### Progestin only pill (POP).

This contains only one hormone, progesterone in form of levonogesterol.

The original treatment schedule was one 0.75 mg dose within 72 hours after unprotected intercourse, and a second 0.75 mg dose 12 hours after the first dose. However, recent studies have shown that a single dose of 1.5 mg is as effective as two 0.75 mg doses taken 12 hours apart. No difference was shown in side-effects between the two regimens. However compliance was higher for the second regimen.

Increasingly, levonorgestrel is marketed internationally in a one-dose formulation (one 1.5 mg pill) rather than the two-dose formulation.

#### Ulliprisal acetate contraceptive pill( CDB 2914)

This contraceptive pill is available only in Europe, sold as ellaOne. It has been found to be highly effective and well-tolerated. (3)

#### Mifepristone contraceptive pill(a steroid, progesterone receptor antagonist)

This contains 10mg mifepristone as an active ingredient in a pill. It is used as a single dose. There seemed to be no decrease with efficacy

over time, and can be used within 120 hours after unprotected sex. This method is also associated with less side-effects but it is currently available only in China.

#### **MODE OF ACTION:**

No single mechanism has been established for emergency contraception. The following are the postulated modes of action:

The levonogesterol only pill and the combined contraceptive pills are shown to inhibit or delay ovulation. Levonorgestrel taken before the LH surge altered the luteal phase secretory pattern of glycodeilin in serum and the endometrium (3).

They have also been proved to work by impairment of corpus luteum function (luteal phase distortion) (1, 4, 5).

Other mechanisms suggested by scientists but not clinically proven by other scientists are thickening of the cervical mucus resulting in trapping of sperm; alterations in the tubal transport of sperm, egg, or embryo. In a study conducted more than 30 years ago, levonorgestrel was found to interfere with sperm migration and function at all levels of the genital tract. (1, 3)

Also hormonal contraceptive pills are believed to have direct inhibition of fertilization.

#### **SIDE EFFECTS:**

No deaths or serious complications have been associated with emergency contraception use. Although there are short side-effects which include the following

##### **nausea and vomiting:**

This is more pronounced with combined contraceptive pills, and is significantly lower with POP. And hence POP is much more preferred than CEC (Combined Emergency Contraception). (1, 4)

##### **Irregular bleeding:**

After emergency contraception use, bleeding occurs one week before or after expected

date. Some experience spotting in a week or month after treatment. This resolves without treatment.

Breast tenderness, dizziness and abdominal pain, headache and fatigue may also occur.

#### **Effect on pregnancy**

No studies done to investigate effects on pregnancy. Existing data shows that use of emergency contraception does not increase the chance that subsequent pregnancies could be ectopic. (1)

### **CLINICAL CONSIDERATIONS AND RECOMMENDATIONS:**

#### **Who are eligible/ indicated to use emergency contraception?**

It should be given to those who had unprotected or inadequately protected sexual intercourse and who don't desire to become pregnant. This includes contraceptive failure (i.e. condom tear, missed doses of oral contraceptive) and failure to use any form of contraception.

#### **Any screening procedures needed before provision?**

No clinical examination or test is required before provision.

#### **When should emergency contraception be initiated?**

Should be initiated as soon after unprotected sexual intercourse as possible since efficacy substantially declines with time and they are more effective when initiated within 72 hours after unprotected sex. But more recent studies show that emergency contraception is still moderately effective when the first dose is taken up to 120 hours after intercourse.(1)

#### **When to resume regular contraception after use of emergency contraception**

Treatment of EC may not protect against pregnancy in subsequent coital acts and hence All eligible women should start using barrier methods soon after taking EC.

Short term hormonal contraceptives i.e. pills may be started either immediately or after the next menstrual period.

Long term hormonal methods should be used after the next menstrual period.

**Other points to note:**

Anti-emetic pretreatment may be beneficial to reduce vomiting especially when using combined contraceptive pills. A single anti-emetic dose taken 1 hour before the first dose of EC has been shown to decrease incidence and severity of nausea.(1,4)

**Taking EC with food doesn't affect the risk of nausea.**

If severe vomiting occurs CEC may be administered vaginally suggesting that hormones are effectively absorbed through the vaginal epithelium.

No clinical follow-ups needed after using EC.

**CONTRAINDICATION TO ORAL EMERGENCY CONTRACEPTION:**

Emergency contraception is not indicated for women with confirmed pregnancy. It carries a risk of adverse effects and won't have any effect.(1)

It is not contraindicated for women with any medical condition i.e. women with cardiovascular disease, migraine or for those on daily contraceptive pills due to its short time usage.

**INTRAUTERINE DEVICE AS EMERGENCY CONTRACEPTION:**

A copper bearing IUD can be inserted for EC. (copper T380 A)

It is effective for up to 5 days following the anticipated day of ovulation and may cover multiple episodes of intercourse. It is more effective than either type of contraceptive pills. It can be left in place and prevent pregnancy up to ten years. (4, 5)

**MODE OF ACTION:**

It prevents implantation

Copper ions exert an embryo toxic effect.

**SIDE EFFECTS AND CONTRAINDICATION :**

There is a risk of sexually transmitted infections and hence PID which may later on cause infertility.

**CONCLUSION:**

To maximize treatment effect, women should be able to get emergency contraception as quickly as the need arises. Emergency contraception provides women with a last chance to prevent pregnancy after unprotected sex. Women deserve that last chance, and barriers to availability should be eliminated. But it is unlikely that expanding access will have a major impact on reducing the rate of unintended pregnancy, primarily because the incidence of unprotected intercourse is so high (1) and emergency contraception does not protect from sexually transmitted diseases like HIV/AIDS.

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