EMERGENCY CONTRACEPTION:

an overview for health professionals

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Emergency contraception

On January 1st 2004, levonorgestrel emergency contraception (EC) in the form of Postinor-2™ became available over the counter from pharmacists without a doctor's prescription. It was hoped this step would realise the potential benefits of raising awareness of EC, involving pharmacists more closely in women's sexual and reproductive health and reducing unplanned pregnancy.
Unplanned pregnancy is a public health concern in Australia. The *Sex in Australia* survey indicated that 22.6 % of women aged 16-59 had a termination of pregnancy, including one in three of those aged 20-29 years[1]. The 1999 Australian fertility rate for women aged 15-19 years was 18.1 births per 1,000. This compares well with some other developed countries such as Canada, UK and USA, with respective rates of 20.2 29.7 and 51.1 [2], but compares poorly with the 1995 figures for France, Netherlands and Switzerland of 9, 6 and 7 respectively [3]. The rate of teenage pregnancy in Australia is unknown. The three states and territories that collect abortion data, South Australia, Western Australia and Northern Territory, have teenage pregnancy rates of 44.4, 44.6 and 100.0 pregnancies per 1,000 aged 15-19 respectively [2]. Teenage mothers tend to have poor obstetric outcomes compared to older women and are more likely to face socio economic disadvantage [4]. Reliable information on unplanned pregnancy is not available in Australia. In the USA, excluding miscarriages, a 1994 study estimates 49% of pregnancies are unintended and 54% of these end in abortion. The same study showed forty-eight percent of women aged 15-44 had had at least one unplanned pregnancy sometime in their lives [5].

Women's knowledge of emergency contraception

Emergency contraception has been available for more than 20 years. Despite this, numerous studies have demonstrated women have limited knowledge around its use. A Melbourne based study of pregnant women attending a women's health clinic for counselling showed that, although 80% of the women interviewed had heard of EC, only 9% used it in an attempt to prevent this pregnancy. Only 26% knew the correct timeframe for taking it. [6] . A larger survey conducted in NSW in 1992 showed that, although 70% of women seeking a termination of pregnancy knew about EC, only 10% attempted to access it and of these one third did not take it due to access difficulties or other reasons [7]. International studies give further support to the general lack of knowledge about EC in women seeking assistance with unplanned pregnancy [8, 9].

Potential abuse of emergency contraception

Concerns about the potential for abuse of emergency contraception are addressed in many studies. In a landmark Scottish study, women were randomised into groups to be either given information about EC, or be given the same information and provided with EC to use in the event of unprotected intercourse. Those assigned to the latter used EC correctly, were not more likely to use it repeatedly

and used other methods of contraception similarly to the comparative group [10]. This is further supported by a British General Practice Research data base investigation, showing women were unlikely to use EC repeatedly and were likely to start regular contraception for the first time after use of EC [11]. Another small study in the USA shows women given EC in advance used it more frequently but did not have unprotected sex more frequently [12]. This is further supported by the French experience with increasing combined pill sales after the over the counter introduction of EC [13].

When a client presents requesting EC

History taking

The History should include:

- Past medical history.
- Medications, including those obtained without prescription.
- Sexual history and assessment of risk of a sexually transmissible infection (STI).
- Time and date of the last menstrual period and whether it was normal. This gives an idea of the risk and also helps to exclude existing pregnancy.
- The time and date of unprotected sex and how many times unprotected sex occurred this cycle and whether any form of contraception was used.
- Social history; importantly, was the sex consensual. Issues such as risk taking behavior related to drugs or alcohol may also be appropriate to address.

General management

It is essential to address the issue of ongoing reliable forms of contraception and risk of STIs. The woman needs to know that just about any method of contraception used before the event will be more effective than emergency contraception. She needs to know that taking emergency contraception now will not protect her for the remainder of her current cycle. The possibility of failure needs to be discussed and the fact that emergency contraception is not thought to cause adverse outcomes in a pregnancy that continues. If the woman is considered at risk of STIs, an appointment should be made for follow up with a GP. GPs may collect from the patient (at the initial consultation for expediency), a 'first pass' urine sample, or self-taken vaginal swab for Chlamydia testing.

The client needs an explanation of how to take the medication (see below), side effects and bleeding patterns. It may be appropriate for the women to be immediately started on a form of hormonal contraception.

Return for review and pregnancy test

A woman should be asked to return for a review, and pregnancy testing, after three weeks if:

- Her period is light, associated with persistent spotting or excessive or unusual pain.
- If her period hasn't come by its usual time, or within 3 weeks (to exclude ectopic or pregnancy).
- She has started hormonal contraception immediately after taking EC.
- She is high risk e.g. young age, sexual assault.
- She needs a contraception review.

She should be asked to return sooner if she develops any symptoms consistent with an STI, such as an unusual vaginal discharge or pain.

Types of EC

Levonorgestrel method

The use of levonorgestrel alone as a method of emergency contraception was first described by Ho and Kwan in 1993. Over 800 women were randomised to receive either 750ug levonorgestrel, repeated in 12 hours or the standard Yuzpe method (see below) within 48 hours of unprotected sex. The levonorgestrel method was superior and was associated with fewer side effects than the Yuzpe method [14]. A WHO study of 1998 confirmed these findings in a larger study group, using a 72 hour interval since unprotected sex [15]. In 2002, an even larger multicentre WHO study compared the efficacy of 1.5 mg levonorgestrel taken as a single dose, compared with the standard levonorgestrel regime. This study allowed women to have EC up to 120 hours after unprotected intercourse The point estimate for the single dose regime was a prevention of 82% (70.9-88.7) of pregnancies, compared with a 77% (64.9-85.4) reduction with the standard two dose regime. [16].

Instructions and regime

The woman is given a total of 1.5 mg of levonorgestrel. This is either as Postinor-2™, or Levonelle-2™ given as a single dose of two tablets each containing 750ug of levonorgestrel or as 2 doses of a single 750ug tablet taken 12 hours apart. Alternatively, 30ug levonorgestrel pills (minipills) can be used to make up the dose by taking 25 tablets and repeating this dose in 12 hours time. The 30ug levonorgestrel method is always given as a split dose and should not be taken as a single dose of 50 tablets. There is no need to routinely dispense an anti emetic. For those taking the divided dose, there is no evidence that there is a loss of efficacy if the second dose in delayed beyond 12 hours after the first dose, provided both doses are taken within a 24 hour time period [17].

Side effects

The common side effects are: change to bleeding pattern (31%), nausea (15%), fatigue (15%), and lower abdominal pain (14%). Vomiting occurs in about 1% of women [16]. Sixteen percent of women experience a "withdrawal" bleed within 7 days of taking emergency contraception. It is important not to confuse this with true menstruation if starting an implant (Implanon™) or long acting injection (Depo-Provera™ or Depo-Ralovera™) as a method of contraception. Most women (60%) will have their next menstrual period at the expected time, although it may be early or late. About 5% of women will have their period more than one week later than expected.

Additional points

- The sooner it is taken the more effective it is likely to be (see below).
- It has some effect up to 120 hours after unprotected sex.
- It is much cheaper for those with a Health Care Card to be given the correct dose as levonorgestrel pills (minipills).
- 30ug levonorgestrel pills (minipills) EC must be prescribed by a doctor.

Yuzpe method

This method was originally postulated by Yuzpe [18]. There has been no dose finding or time modification trials. The Yuzpe method is inferior to the levonorgestrel method in terms of efficacy and side effects. **It should only be used if there is absolutely no possibility of the woman obtaining the levonorgestrel method.**

Instructions and regime

It can be given up to 120 hours after unprotected intercourse The regime consists of two doses taken 12 hours apart, of at least, levonorgestrel 500ug and ethinyl oestradiol 100ug.. This can be achieved by using for each dose any of the following regimes: [19].

- Nordette™/Microgynon™/Monofeme™/Levelen™ x4
- Triphasil™ / Triquelar™/ Trifeme™/ Logynon™, ochre/yellow tablets x4 (last 10 active pills in the pack)
- Loette™ /Microgynon™ 20/Microlevelen ™, x5

Note Microgynon 50™ is not suitable as it does not contain enough levonorgestrel.

Because of the high incidence of nausea and vomiting, this regime is usually dispensed with antiemetics. A spare dose is given in case of vomiting.

Instructions

Take first dose of hormone tablets and one Maxolon tablet at ___

Take second dose of hormone tablets and one Maxolon tablet at ___

There is a spare does of hormone tablets. Take these if you vomit within 2 hours of either dose

Side effects

The estimated efficacy is around 75%, with common side effects being vomiting (20%), nausea (50%), dizziness, fatigue. The next menstrual period may be early, late, but most likely on time.

Modified Yuzpe

This regime was investigated in a study comparing standard Yuzpe with a single dose Yuzpe and a regime consisting of 2 doses of 100ug ethynyl oestradiol and 2g norethisterone acetate given 12 hours apart. They respectively reduced the expected % of pregnancies by 72.8 (95% CI 51.2%-84.9%), 60.1% (95% CI 33.5%-76.1%) and 61.3% (95% CI 33.5% and 77.2%) [20]. This regime can be approximated by using 2 doses, 12 hours apart of 3 pills containing 35ug of ethynyl oestradiol and 1000ug of norethisterone (Brevinor-1™ or Norimin-1™). This regime is not recommended in Australia.

Mifepristone

Mifepristone (RU486) is not available in Australia as emergency contraception . It has a similar efficacy to levonorgestrel as an EC.

IUD (inter uterine device)

The Copper IUD is an effective form of emergency contraception preventing 95%-99% of pregnancies that would otherwise have occurred [21-24]. IUDs, as emergency contraception, may be inserted up to 5 days after one episode of unprotected sex or up to day 12 of a 28 day cycle to prevent pregnancy. IUDs have the advantage of offering very effective ongoing contraception. Swabs are collected just prior to insertion and antibiotics are taken until results are available. IUDs have a number of complications, and although these are uncommon, are sufficient to limit the use of this form contraception for emergency use.

Efficacy of EC

It is difficult to determine the true efficacy of EC. There have been no double blind randomised controlled clinical trials utilising a placebo arm. Estimates of efficacy are based on algorithms that give a percentage chance of pregnancy for the day of unprotected sex based on the first day of the last period. The numbers of expected pregnancies are compared to the number of actual pregnancies. Levonorgestrel EC is estimated to reduce the risk of pregnancy that would otherwise have occurred by 85%.

Efficacy and time

Evidence suggests emergency contraception is more effective when taken soon after unprotected sex. This was most clearly demonstrated in the WHO 1998 trial, where 95% of pregnancies were estimated to be prevented when taken within the first 12 hours after unprotected sex, compared with a 57% reduction when taking it 60-72 hours after unprotected sex [15]. This was not clearly demonstrated in the larger 2002 WHO study, although those who took emergency contraception in the first 72 hours after unprotected sex had a higher percentage of pregnancies prevented than those who took it from 72-120 hours [16]. At this stage, the advice is to take emergency contraception as soon as possible after unprotected sex.

Mechanism of action

Most of the information comes from small studies using the Yuzpe method and supports the view that hormonal emergency contraception works primarily pre conception. There is no evidence EC will abort an established pregnancy and all evidence looking at possible effects post fertilisation of an egg is conjectural.

Possible mechanisms

- Trap sperm.
- Inhibit ovulation
  - There is direct scientific evidence demonstrating hormonal EC's effect of either stopping ovulation (releasing an egg), or delaying it for long enough for any sperm present to die. Consequently it makes sense that the more quickly it is given, the better the chance of taking it before ovulation has happened.
- Inhibit tubal transport of egg or sperm.

- Interfere with fertilization, early cell division, or transport of embryo.
- Prevent implantation by disrupting the uterine lining
  - This data is indirect and is limited to looking at the effect of a high dose of emergency contraception on the endometrium and corpus luteum. Evidence from small studies conflicts and it is not possible to say with accuracy that the small changes in the uterus lining detected by some studies will prevent implantation.
- Cause failure of the corpus luteum
  - It is not possible to say whether small changes observed in the production of hormones that would assist in establishing a pregnancy are enough to prevent a pregnancy.

Emergency contraception and steroidal contraception

Combined pill

When a woman uses the combined pill for contraception, provided missed pill rules are followed EC is only needed:

- If a pill is more than 24 hours late in the first 7 days of a cycle and she has had unprotected sex in the previous 120 hours. The cycle starts with the first active pill after placebos have been taken.
- If the woman is anxious, despite not breaking any rules, it is reasonable to be cautious and prescribe EC
- Once emergency contraception has been used, and when any nausea settles, a woman can restart her pills; *provided* she begins with an active pill she is safe after taking 7 consecutive active pills
- If a woman misses more than 4 pills anywhere in a pack she is considered to have stopped taking the pill and may need EC.

Progestogen only pills (Mini pill)

If a single progestogen only (mini pill) is missed and a woman has intercourse, emergency contraception should always be considered. She can restart her contraceptive the next day and will be safe after she has taken 3 consecutive pills.

Starting contraception after EC

Although it is ideal to wait for a period to exclude pregnancy, in many situations the risk of a pregnancy whilst waiting would warrant commencing hormonal contraception immediately.

Combined pills

The combined pill may be commenced as soon as nausea settles. If a woman starts on an active pill, she will be safe after 7 consecutive active pills. This may cause initial cycle disruption.

Progestogen only pills (Mini pills)

These may be commenced as soon as nausea settles and are effective after 3 consecutive pills have been taken.

Implants, injections and IUDs

Cannot be commenced until the next normal period, or until pregnancy is absolutely excluded. This may take 3 weeks.

Special situations

Breastfeeding

Roughly 1% of the maternal dose will be passed on to the infant. Continued feeding is considered safe by the

World Health Organization.. This is the policy of FPV, despite product information for Postinor-2™ and levonelle-2™ stating: “Women should be advised not to breastfeed within three days after taking Postinor-2.”

More than 120 hours has passed since last unprotected sex

As the time of ovulation is often unknown, and sperm may survive up to 7 days, there may still be some value in providing EC. There is a proven effect of EC up to 120 hours after unprotected sex.

PH of CVD/stroke/thrombosis

This situation should be assessed by a medical practitioner. Generally the risk of a pregnancy will outweigh the risk of EC.

Drug interactions

Take a 50% greater dose for either hormonal method, or consider an IUD for women with concomitant use of medication that increases the metabolism of hormones by the liver, e.g. many of the anti epileptics. St John’s Wort also acts in a similar way.

Levonorgestrel may affect warfarin levels. The international normalised ratio (INR), a measure of warfarin’s anticoagulant effect, should be checked 2-4 days after EC is given and the woman should be advised to see a doctor immediately if she experiences abnormal bleeding, such as a nose bleed.

Multiple acts in cycle

EC may be used for each act of unprotected intercourse in any cycle.

Repeated emergency contraception use

A woman should not be denied EC, despite the fact it is not a reliable long term way of preventing pregnancy

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