Emergency contraception

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Emergency or postcoital contraception is used after an episode of unprotected sexual intercourse. As long as the intervention is before implantation it is called interception, not contragestion or abortion, which happen after implantation is completed. Ovulation usually occurs 14 days before the next period but can vary from 12 to 16 days before it. Implantation of a fertilised egg starts some five days after fertilisation (which occurs within a day of ovulation) and takes about 14 days to complete.

There are two forms of postcoital contraception – emergency contraceptive pills (ECP) and insertion of an intrauterine contraceptive device (IUD).

The efficacy of emergency contraception can be expressed in two different ways. One measures the outcome – the number of pregnancies observed after women have used emergency contraception. However, not every woman using emergency contraception would have become pregnant – it is estimated that the chance of conception from a single act of sexual intercourse is no more than 8.6% depending on the day of the cycle.[1] So if the observed pregnancy rate is compared to the expected pregnancy rate, the absolute efficacy of emergency contraception can be calculated, indicating what proportion of women were prevented from becoming pregnant. As these are very different figures, it is important to be clear which figures we are using.

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Emergency contraception is most likely to be needed for unprotected sexual intercourse within the week before the expected day of ovulation and when combined oral contraceptive pills are forgotten from the first week of active pills.

Emergency contraceptive pills

Hormonal emergency contraception now involves progestogen only pills since a World Health Organization trial showed these to be more effective and to have less side effects than the previous Yuzpe oestrogen-progestogen regime[2] (see Table 1). It is of interest that this multicentre trial included New Zealand women attending Family Planning clinics. The dosage of the progestogen only emergency contraception (POEC) was 750mcg of levonorgestrel (LNG) started within 72 hours of the unprotected intercourse with the same dose repeated in 12 hours. This study also confirmed that the ECP worked better if it was started early after the unprotected intercourse.

This regimen is extremely safe with no contraindications other than known pregnancy. A few women may be allergic to levonorgestrel and some women with porphyria may have an adverse reaction. There is no evidence of teratogenicity if the POEC is accidentally taken in early pregnancy. On the other hand it does not work if taken after implantation, i.e. it cannot cause an abortion.

This safety, coupled with concern to reduce unwanted pregnancies by improving access to emergency contraception, has led in New Zealand to extending the provision of the POEC to pharmacists and nurses who have completed a specific training course and received accreditation. The product for their use is Levonelle-2 (which is not fully subsidised) and the product to be prescribed or obtained on a Practitioner Supply Order is Postinor-2.

A study of the pharmacokinetics of 750mcg levonorgestrel shows it is rapidly absorbed and significant levels remain in the circulation for 12 to 24 hours afterwards.[3]

A more recent large WHO trial compared the two dose POEC regime with a single double dose of POEC (1.5mg levonorgestrel).[4] It found them to be equally effective with 1.8% pregnancy rate for the two dose regimen (77% pregnancies prevented) and 1.5% pregnancy rate for the single dose regimen (82% pregnancies prevented). There was no significant difference in side effect rates although there has been a theoretical concern that the ectopic rate could be higher with the single dose regimen. Although the numbers were small, women who started either POEC regimen between 72 and 120 hours from unprotected intercourse experienced a reduction in expected pregnancy rates (60 or 63% prevented).

Information from this trial has led to a quandary in New Zealand and

overseas. Clearly a single dose of the emergency contraceptive pill is much simpler than two doses. However, many authorities, e.g. the UK Faculty of Family Planning and Reproductive Health Care,[5] have been slow to embrace this new dosage, reserving it for those women who would have difficulty in remembering the second dose. An added dilemma is the belief that nurses and pharmacists can only supply medication according to the data sheet that outlines the two dose regimen. Doctors are able to prescribe differently from the data sheet but should indicate to the patient that they are doing so. If nurses want to supply a single dose regimen, they must do so as a delegated duty from a doctor or use Standing Orders. It seems likely that the one dose regimen will become increasingly popular in spite of these difficulties.

Action of LNG ECP

It has been shown that LNG given a few hours after sexual intercourse affects sperm migration – reducing the number of sperm recovered from the uterine cavity, increasing the pH of the uterine fluid thus immobilising sperm, and increasing cervical mucus viscosity.[6] Capacitation of sperm occurs in the Fallopian tubes over several days after insemination and sperm are only viable for a short time after capacitation. LNG may inhibit or postpone the LH peak inhibiting or delaying ovulation or may interfere with the formation of the corpus luteum if given a few days before ovulation is expected. There is no evidence that LNG alters endometrial development so there is no evidence that the LNG ECP acts by preventing implantation. This information supports a pre-fertilisation effect for this method.

Postcoital IUD

A copper IUD can be inserted within five days of the expected time of fertilisation – the efficacy is almost 100%. This method is indicated for women who are beyond 72 hours at a time in the cycle when they have a high risk of conception or for those who want the highest efficacy possible or want to use a copper IUD long-term. It is necessary to consider the woman's current and usual cycle. It should be noted that a postcoital IUD may be inserted more than five days after the unprotected intercourse, e.g. a person with a usually 28-day cycle may have unprotected intercourse on day 10 – she will not ovulate until day 14 and can have an IUD inserted up to five days later on day 19, before implantation starts. Unlike hormonal postcoital contraception which can safely, though ineffectively, be given if implantation has taken place, insertion of an IUD after implantation can lead to higher rates of infection and miscarriage. So it is essential to get an accurate picture of when fertilisation may have occurred in this cycle and not insert an IUD more than five days later. Mirena IUDs do not provide a contraceptive effect quickly enough to be used as postcoital contraception.

What are the three essential questions in the history when considering emergency contraception?

1. How long ago was the unprotected intercourse? For women who are beyond 72 hours at a time in the cycle when they have a high risk of conception, a postcoital IUD will be more suitable than POEC.
2. When did her last menstrual period begin and what is her usual cycle length? A woman may present so late in a cycle that a pregnancy test may be more appropriate than emergency contraception.
3. Is she taking any medication? Enzyme inducing medication such as rifampicin or some anticonvulsants (barbiturates, tegretol and carbamezepine) interfere with POEC so double the usual dose is necessary. No increase in dose is required for antibiotics.

What else can be covered in the consultation?

- How to take the medication. The first dose should be taken as soon as possible and the second dose 12 to 16 hours later. The importance of taking the first dose as soon as possible to gain maximum efficacy cannot be overemphasised – the timing of the second dose is less critical since hormonal levels remain high for up to 24 hours. The first dose should not be delayed as was previously suggested to allow easy timing of the second dose. The pills are best taken with or after food to minimise nausea and vomiting. Women should be advised to return for further medication if they vomit within three hours of taking a dose. A leaflet on ECP is available from FPA Resource Unit, P O Box 11515, Wellington, or www.fpanz.org.nz.
- Follow up. Women should return for a pregnancy test if their next

Table 1. WHO study results of Yuzpe versus levonorgestrel emergency contraception

	Yuzpe method	LNG method
Outcome – pregnancy rate	3%	1%
Pregnancies prevented	57%	85%
Started within 24 hours	2%	0.5%
Started 24–48 hours	4%	1%
Started 48–72 hours	4.5%	2.5%
Nausea	51%	23%
Vomiting	19%	6%

period does not come at all, is lighter than usual, or if they experience any symptoms suggestive of an ectopic pregnancy. Most women get a period within a few days of when they expected it.

- Since ovulation may be delayed, it is particularly important to use effective contraception after taking an ECP – the ECP works only for that episode of unprotected intercourse and gives no protection later in the cycle.
- This is a good opportunity to review contraception – starting or changing the method, the seven day rule and pill taking problems and condom use.
- Coercion – was the need for emergency contraception a result of unwanted sexual activity and if so, what management is appropriate.

* Assess need for STI check – this can be scheduled for two to three weeks after the unprotected intercourse.

* Would a prescription for Postinor-2 for future use be appropriate – two packets can be prescribed at a time.

Other points

- Antiemetics are seldom needed – they need only be prescribed if a person has had significant nausea or vomiting when using POEC before.
- An ECP can be given more than once in a cycle if necessary.
- Emergency contraception is not a particularly effective method long term – with a 1% failure rate per cycle, this would add up to 13% per year.
- A postcoital IUD can be removed with the next period.
- Prophylactic antibiotics may be necessary with a postcoital IUD if there is a significant risk of STI
- Consider prescribing POEC for future use for couples using condoms as their method of contraception and for women starting the contraceptive pill.

Key Points

- Progestogen only ECP is now the standard.
- Start ECP as soon as possible to improve efficacy.
- Offer prescription of ECP for future use.
- Postcoital copper IUD can be inserted up to five days from expected time of fertilisation.

Conclusion

Emergency contraception is very effective and has the potential to reduce New Zealand's unacceptably high unwanted pregnancy rate. It is extremely safe and can be prescribed for future use. The sooner it is started, the more effective it is.

References

1. Trussell J, Ellertson C, von Hertzen H, et al. Estimating the effectiveness of emergency contraceptive pills. Contraception 2003; 67:259–265.
2. Task Force on Post-ovulatory Methods of Fertility Regulation. Randomised control trial of levonorgestrel versus the Yuzpe regime of combined oral contraceptives for emergency contraception. Lancet 1998; 352:428–433.
3. Tremblay D, Gainer E, Ulmann A. The pharmacokinetics of 750mcg levonorgestrel following administration of one single dose or two doses at 12 or 24 hour interval. Contraception 2001; 64:327–331.
4. von Hertzen H, Piaggio G, Ding J et al. Low dose mifepristone and two regimens of levonorgestrel for emergency contraception: a WHO multicentre randomised trial. Lancet 2002; 360:1803–1810.
5. Faculty of Family Planning and Reproductive Health Care Clinical Effectiveness Unit. Emergengy Contraception. J Fam Plan & Reprod Health 2003; 29:9–15.
6. Croxatto H. Emergency contraception pills: how do they work? IPPF Medical Bulletin 2002; 36(6):1–2.

Another reason for not prescribing norfloxacin routinely for elderly patients

A recent study[1] has reported that there is a significantly increased risk of Achilles tendon rupture in patients taking quinolones. The risk is especially high in elderly patients who are also taking oral corticosteroids. The study was a population-based case-control study using the General Practice Research Database in the UK for the period 1988 through 1998. This database includes information from eight million patients aged 18 to 95. The odds ratios for Achilles tendon rupture were:

- 4.3 for current exposure
- 2.4 for recent exposure
- 1.4 for past exposure
- 6.4 for patients aged 60-79 years
- 20.4 for patients aged more than 80 years

Concomitant use of quinolones and oral corticosteroids nearly tripled the risk compared with current quinolone exposure alone.

Although the incidence of Achilles tendon rupture in the population is low it would seem unwise to use quinolones in the elderly who are also taking oral corticosteroids.

1. Van der Linden PD, Sturkenboom MCJM, Herings RMC, Leufkens HMG, Rowlans S, Stricker BHC. Increased risk of Achilles tendon rupture with quinolone antibacterial use, especially in elderly patients taking oral corticosteroids. Arch Int Med 2003; 163:1801-1807.