Q&A 399.3

Emergency contraception and breast-feeding

Prepared by UK Medicines Information (UKMi) pharmacists for NHS healthcare professionals

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Background

Emergency contraception can be used after unprotected intercourse but before a fertilised ovum has been implanted. The two most commonly used emergency contraceptives are oral contraceptives and the copper intra-uterine device (Cu-IUD).

Hormonal emergency contraceptives ('morning after pill') include levonorgestrel and ulipristal; either drug should be taken as soon as possible after unprotected intercourse to increase efficacy. Levonorgestrel is effective if taken within 72 hours (3 days) of unprotected intercourse. It may also be used between 72 and 120 hours after unprotected intercourse [unlicensed use], but efficacy decreases with time. Ulipristal acetate, a progesterone receptor modulator, is effective if taken within 120 hours (5 days) of unprotected intercourse (1).

Levonorgestrel is less effective than insertion of an intra-uterine device. Ulipristal is as effective as levonorgestrel, but its efficacy compared to a copper intra-uterine device is not yet known (1).

A Cu-IUD can be inserted up to 120 hours (5 days) after unprotected intercourse. If intercourse has occurred more than 5 days previously, the device can still be inserted up to 5 days after the earliest likely calculated ovulation regardless of the number of episodes of unprotected intercourse earlier in the cycle (1).

Women can be advised that unprotected sexual intercourse or contraceptive failure before day 21 postpartum is not an indication for emergency contraception. If emergency contraception is required, women can be advised that progestogen-only emergency contraception can be used from day 21 onwards and the emergency Cu-IUD from day 28 onwards (2). Women may wish to breastfeed their infants during these times and this raises the question of the compatibility of emergency contraception whilst breastfeeding.

Answer

The following information relates to full term and healthy infants. If the infant is pre-term, of low birth weight or has other concomitant pathology or medical problems, then specialist advice should be sought as this answer may not apply.

Levonorgestrel

Progestogen-only contraceptives, such as low dose levonorgestrel (30micrograms daily), are considered the hormonal contraceptives of choice whilst breastfeeding (3). Evidence indicates that daily low dose levonorgestrel does not adversely affect the composition of milk, the growth and development of the infant, or the milk supply (3). Data regarding the use of a single 1.5mg dose of levonorgestrel for emergency contraception whilst breastfeeding is limited.

A study evaluated the pharmacokinetics of a single dose of 1.5mg levonorgestrel administered to 12 breastfeeding woman. Concentrations in breast milk paralleled maternal serum concentrations but were lower than serum concentrations with a milk/plasma ratio of 0.28. Peak milk levels were seen in breast milk 2–4 hours after dosing. The authors estimated, based on an infant receiving 800mL of breast milk per day, that they would be exposed to 1.6 micrograms of levonorgestrel on the day of maternal dosing, 0.3 micrograms on the second day, and 0.2 micrograms on the third day. Breastfeeding was interrupted for 72 hours after which time it was resumed, therefore infant levels

were not measured during this time. Based on this data the authors recommended that to limit exposure to a breastfed infant withholding breastfeeding for 8 hours after dosing should be considered (4).

The effect of levonorgestrel used as emergency contraception on breastfeeding and on breastfed infants was assessed in an observational cohort study. Breastfeeding women who used levonorgestrel as an emergency contraceptive (n=71) were compared to breastfeeding women who used either ethynodiol diacetate or desogestrel daily (n=72). The majority of women who received levonorgestrel recommenced breastfeeding within 8 hours. No obvious decrease in milk supply and no adverse effects in the infant were reported. The authors concluded that they found no evidence to support withholding breastfeeding for 8 hours following use of levonorgestrel for emergency contraception (5).

Although milk levels are higher during the first 24-hour period, and levonorgestrel is said to be almost completely bioavailable (6, 7), levonorgestrel is administered as a one-off dose, so there is no risk of accumulation to the infant. Therefore, the overall exposure to levonorgestrel still remains low, and advising a mother to suspend breastfeeding for 8 hours after the dose does not offer significant benefit over the impracticalities this may cause.

Therefore, the manufacturer's Patient Information Leaflet, Faculty of Family Planning and Reproductive Healthcare, and Family Planning Association recommend that there are no restrictions on a single dose of levonorgestrel 1.5mg whilst breastfeeding.(2, 8, 9)

Ulipristal acetate

Ulipristal acetate is a small molecule (molecular weight 476), with an oral bioavailability of approximately 100% (6), and is highly bound to plasma proteins (>98%) (10). Following oral administration of a single 30mg dose, it is rapidly absorbed with a peak plasma concentration occurring approximately 1 hour after ingestion (10). The terminal plasma half-life of ulipristal acetate is about 32 hours after a single 30mg dose (11). Therefore, passage of ulipristal acetate into breast milk should be expected with some infant absorption. However, as it is a steroid, levels in milk will probably be low since this has been shown with other steroids (6).

Ulipristal acetate has been shown to be present in the milk of lactating rats (6). Ulipristal acetate is a lipophilic compound and is distributed in breast milk, with a mean daily excretion of 13.35micrograms [0-24 hours], 2.16 micrograms [24-48 hours], 1.06 micrograms [48-72 hours], 0.58 micrograms [72-96 hours], and 0.31 micrograms [96-120 hours]. The manufacturers currently recommend that after ulipristal acetate dosing, breastfeeding should be withheld for at least one week [10]. However, although ulipristal acetate is not the preferred choice when breastfeeding, it is not necessary to withhold breastfeeding following a single dose as the risk to the infant is considered to be low.

Copper intra-uterine device

The effects of a Cu-IUD on maternal copper metabolism during breastfeeding was studied in 95 mothers who chose to use non-hormonal contraceptive methods. They were divided into two groups: group one were inserted with a Cu-IUD (n = 62), and a second group that did not use any IUDs served as the control (n = 33). Endometrial biopsies, blood, and milk samples were collected before (at 10 weeks postpartum) and 6 weeks after insertion of the device for detection of metabolites associated with copper metabolism (serum ceruloplasmin and copper concentrations in breast milk and endometrium). Endometrial copper concentration increased in women using Cu-IUDs, however this did not affect serum ceruloplasmin or milk copper concentrations (12).

A study looking at the effects of a Cu-IUD on parameters of lactation in breastfeeding woman and on the growth of their breastfed infant, over a 3-year period was described. Healthy lactating women (n=38) 28–56 days postpartum, chose to have a Cu-IUD inserted. The mean duration of breastfeeding coinciding with treatment of the mothers was 423.4 days (range 1–1099 days). No treatment related adverse effects were reported and all infants were developing normally at the end of the study period. (13)

Summary

Women can be advised that unprotected sexual intercourse or contraceptive failure before day 21 postpartum is not an indication for emergency contraception.

- If emergency contraception is required, women can be advised that progestogen-only emergency contraception (levonorgestrel or ulipristal acetate) can be used from day 21 postpartum and the emergency copper intra-uterine device from day 28.
- A single dose of 1.5mg levonorgestrel is licensed to be taken within 72 hours (3 days) of unprotected intercourse or contraceptive failure. No restriction on breastfeeding is required.
- A single dose of 30mg ulipristal acetate is licensed to be taken within 120 hours (5 days) after unprotected intercourse or contraceptive failure. Although no restriction on breastfeeding is required, due to lack of data, ulipristal would not be the preferred emergency hormonal contraceptive method.
- A copper intra-uterine device can be inserted up to 120 hours (5 days) after unprotected intercourse or contraceptive failure. If intercourse has occurred more than 5 days previously, the device can still be inserted up to 5 days after the earliest likely calculated ovulation. No restriction on breastfeeding is required.

Limitations

- Evidence on the secretion of medicines into breast milk, and its safety in breast-fed infants, is generally limited to relatively small studies with limited numbers of mothers and infants.
- The information relates to full term and healthy infants. Evidence in preterm infants is lacking. If the infant is preterm, of low birth weight or has other concomitant pathology or medical problems, then specialist advice should be sought as this answer may not apply. Contact the UK Drugs in Lactation Advisory Service (UKDILAS) provided by the Trent and West Midlands Medicines Information Services (Telephone: 0116 258 6491 or 0121 311 1974).

References

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Search strategy
For lactation evidence:

- Embase and Medline (Standard UKDILAS Search Patterns) [link]
- Medications and Mothers' Milk Online: levonorgestrel and ulipristal acetate
- Drugs and Lactation Database (LactMed). Toxnet Toxicology Data Network, United States National Library of Medicine. Available from http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?LACT . Levonorgestrel, Ulipristal and Intrauterine Copper Contraceptive monographs
- Manufacturers (eMC) of levonorgestrel and ulipristal acetate products
- Faculty of Family Planning and Reproductive Healthcare