Chapter 16
Contraception for the Postpartum Period

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Immediate Postpartum Contraception

Contraception in the postpartum period can be initiated immediately or in the outpatient setting [12, 13]. The immediate postpartum period can have many meanings [13, 14]. Immediate post-placental insertion of an intrauterine device (IUD) is defined by the first 10 minutes after delivery of the placenta. Immediate postpartum can also be defined as within 10 minutes of delivery of the placenta to 72 hours postpartum [12, 14].

Immediate postpartum contraception typically refers to using long-acting reversible contraception (LARC) methods, which includes IUDs and the etonogestrel implant. Benefits of immediate postpartum LARC insertion include its convenience, safety, and efficacy [4, 15]. There is no interference with breastfeeding, and the provider avoids performing an uncomfortable insertion in the outpatient setting at a later date. Immediate LARC initiation also improves postpartum contraceptive rates, which then reduces unintended pregnancy and short interpregnancy intervals [4, 15, 16]. The American College of Obstetricians and Gynecologists recommends providers and institutions to develop processes for stocking LARCs on labor and delivery units in order for IUDs and implants to be available as effective options for immediate postpartum contraception [17].

> It is important to note that inserting an IUD immediately after delivery of the placenta, regardless of mode of delivery, has not been associated with increased infection, uterine perforation, or postpartum bleeding [4].

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D. Shoupe (ed.), *The Handbook of Contraception*, Current Clinical Practice,
https://doi.org/10.1007/978-3-030-46391-5_16

One disadvantage of immediate IUD insertion is the potentially higher risk of expulsion when compared to delayed insertion at the postpartum visit. However, this increased risk should not preclude immediate insertion but rather be incorporated into one's contraception counseling [14, 16]. Sonalkar and Kapp conducted systematic review to assess expulsion rates with postpartum LARC insertion (both levonorgestrel [LNG]- and copper-containing IUDs) in both vaginal and cesarean deliveries at various postpartum time points [13]. When comparing post-placental IUD (LNG or copper, manually or with ring forceps) insertion versus insertion between 10 minutes and 48 hours of delivery, one randomized control trial (RCT) showed similar expulsion rates between the two groups [18]. Three cohort studies investigating this issue of timing showed similar safety, similar number of post-insertion bleeding days, and no clinically evidence cases of perforations in both groups [13, 19–21]. Two of these studies reported similar expulsion rates [20, 21], but the study by Chi et al. demonstrated a higher rate of expulsion in the >10-minute to 48-hour group compared to the <10-minute group ($p < 0.001$) [13, 19].

Studies comparing outcomes in immediate, <10 minutes, insertion versus 10 minutes to 72 hours postpartum are fair to poor quality, and data widely varies [13]. One study reported an expulsion rate of 70% in the 10-minute to 72-hour group [22], while another reported an expulsion rate of 5% in this group [23]. These studies included both vaginal and cesarean deliveries but only included cases with the copper-IUD[22,23]. Two RCTs evaluating expulsion rates of LNG-IUD with post-placental insertion versus insertion at the 4–6weeks postpartum visit showed expulsion rates in favor of the delayed insertion at the postpartum visit [13, 18, 24]. Interestingly, data from these RCTs showed that due to the high follow-up and available funding for replacements of expelled IUDs, IUD use at 6 months postpartum is similar in both groups [13].

In summary, expulsion rates with immediate postpartum contraception favor insertion within 10 minutes from delivery versus 10 minutes to 72 hours postpartum [13]. However, expulsion rates with immediate insertion are still higher than the expulsion rates in women initiating an IUD at the postpartum visit, 4–6 weeks after delivery [25, 26]. More data are needed to compare expulsion rates between LNG- and copper-containing IUDs [13]. LNG-containing and copper-containing IUDs are highly ranked according to the US MEC criteria, and both should be incorporated into one's contraceptive counseling [12].

Postpartum Contraception for the Breastfeeding Mother

The American Academy of Pediatrics Policy Statement on breastfeeding reports significant health benefits for both mother and baby [27]. Patients and providers may assume that hormonal contraception carries inhibitory effects on lactation, but breastfeeding should not deter a woman from utilizing contraception in the

postpartum period [4, 12, 28, 29]. Ideally, the contraceptive method used in breastfeeding women augments rather than diminishes lactation [30].

Immediate Postpartum LARC Contraception and Breastfeeding

Progesterone is rapidly cleared following delivery of the placenta, and it is this drop in progesterone that triggers lactogenesis [26, 31]. If this decline is interfered by a progestin-containing contraception, there is concern that lactogenesis could be impaired [4, 26, 31].

> However, no reduction in breastfeeding has been observed in randomized controlled trials involving either early or immediate post-placental LARC insertion [4, 28].

Gurtcheff et al. randomized women ($n = 69$) who desired the etonogestrel implant to have the insertion 1–3 days postpartum or 4–8 weeks postpartum [28]. There were no statistically significant differences in demographics, mode of delivery, use of anesthesia, or prior breastfeeding history in either group. Early insertion proved to be non-inferior to the 4–8 weeks postpartum insertion as far as time to lactogenesis and incidence of lactation failure [28].

A systematic review of 26 studies examining postpartum LNG-IUD use showed that the LNG-IUD had no effect on milk production or on infant growth and can safely be used in both the immediate postpartum and 4–6 weeks postpartum period in lactating women [30]. Turok et al. examined this relationship by randomizing 285 women who both desired to breastfeed and to receive a LNG-IUD postpartum to receive either immediate IUD insertion or delayed insertion at the postpartum visit [26]. Analysis showed that there was no difference in the prevalence of breastfeeding at 8 weeks postpartum, nor was there a difference in time to lactogenesis between groups [26].

The US MEC states that breastfeeding women using IUDs do not have increased risk for certain IUD-associated adverse events including expulsion, infection, pain, or bleeding compared to non-breastfeeding women. The copper-IUD is classified as category 1 (no restriction), and the progestin-containing LARCs (LNG-IUD and etonogestrel implant) are classified as category 2 (advantage of use generally outweighs risk) for breastfeeding women in the immediate postpartum period [12].

> In conclusion, breastfeeding is not a contraindication to immediate LARC insertion and should be considered an appropriate contraceptive option.

Non-immediate Postpartum LARC Contraception and Breastfeeding

Numerous studies have found the initiation of progestin-only contraceptives, including the etonogestrel implant, 6 weeks postpartum to be safe for both the breastfeeding mother and the breastfed infant [12, 32].

When initiated 4–8 weeks postpartum, the use of the etonogestrel implant was not associated with change in volume or composition of breast milk [33]. Additionally, no differences were noted in the infant or in the 3-year follow-up, assessing child growth and development, between implant users and copper-IUD users [33, 34].

Short-Acting Postpartum Contraception and Breastfeeding

As mentioned above, there is a theoretical concern that progestin-containing contraceptives negatively affect lactogenesis [12, 26, 28, 32]. Estrogen has also been thought to impair breastfeeding in the postpartum period via its inhibitory effect on prolactin [29, 35]. Due to these concerns, the US MEC has classified combined hormonal contraceptives as category 4 for breastfeeding women up to 6 weeks postpartum (unacceptable health risk with use) and category 3 for 6-week to 6-month postpartum (risk outweighs advantage of use) [12, 29]. It is also important to note that failure rates of short-acting contraceptive methods with "typical use" are lower than with "perfect use" and thus could result in unintended pregnancy [36, 37].

Despite these concerns, some women may prefer to use short-acting estrogen-containing contraception, such as the combined hormonal contraceptive pill, transdermal patch, or vaginal ring. Women may prefer these short-acting methods for their improvement in menstrual cramps, improved bleeding patterns, reversibility, ease of use, and noncontraceptive benefits (acne, breast tenderness, etc.) [29, 38, 39]. One RCT addressed the question of whether or not it is appropriate to offer these methods of contraception to breastfeeding women. This study examined the effect of combined hormonal contraceptives versus progestin-only containing pills on breastfeeding outcomes and infant weight and height. Investigators found no significant differences in formula supplementation or breastfeeding discontinuation at 8 weeks postpartum, nor did investigators find significant differences in infant weight or length [40]. A Cochrane review of RCTs investigating lactation patterns and infant growth in women using hormonal contraception, nonhormonal contraception, or placebo concluded that most trials did not report significant differences in breastfeeding duration, breast milk composition, or infant growth in either arm [29]. There were few exceptions to this generalization, but these findings were mostly found in older studies with limited reporting of data [29, 41].

To answer whether or not estrogen-containing contraceptives are suitable for the breastfeeding mother is not straightforward.

> While limited data has shown no differences in breastfeeding outcomes or infant growth, there is a possibility that estrogen-containing methods may inhibit prolactin secretion and therefore possibly decrease milk production [12, 29, 35, 40].

Postpartum Contraception for the Non-breastfeeding Mother

If a woman is not lactating, there is no concern of hormonal effects on lactogenesis. However, there is still a need to consider high-risk health conditions in the individual. Exogenous estradiol exposure can be contraindicated in certain health conditions, particularly those related to cardiovascular disease. The Society for Maternal-Fetal Medicine recommends that LARCs be offered to women at highest risk for adverse health events as a result of a future pregnancy (Grade 1B) [4]. Due to LARCs lacking estrogen, they have been considered safe options for women with a history of various medical conditions, including chronic hypertension, cardiovascular disease, diabetes, thromboembolic disease, cardiovascular, and epilepsy (Table 16.1) [4, 12].

Table 16.1 Conditions associated with increased risk of pregnancy-related morbidities

Obstetric complications	Maternal medical conditions
Preterm birth	Morbid obesity
Preeclampsia	Cardiovascular disease
Critical intensive care unit admission	Cancer
Peripartum cardiomyopathy	Diabetes
	Bariatric surgery within the past 2 years
	Human immunodeficiency virus
	Sickle cell disease
	Solid organ transplant within the past 2 years
	Thrombophilia
	Venous thromboembolism
	Maternal genetic disorders (including cystic fibrosis, Marfan syndrome)
	Chronic renal disease
	Chronic liver disease
	Chronic hypertension
	Drug addiction

Society for Maternal-Fetal Medicine (SMFM) Consult Series #48: Immediate postpartum long-acting reversible contraception for women at high risk for medical complications

The US MEC categorizes LARCs as either category 1 or 2, as described above. The only cases where IUDs are category 4 (unacceptable risk) are typically those where there is acute infection or inflammation, such as in pelvic inflammatory disease or puerperal sepsis, malignancy (specifically levonorgestrel-containing IUD is contraindicated with current breast cancer), cavity distortion (as a result of fibroids or Müllerian anomaly), or Wilson's disease (specifically copper-containing IUD). The implant is considered US MEC category 4 only in the case of current breast cancer [4, 12]. For a more detailed description, please see US MEC's recommendations specific to the immediate postpartum period on the Center for Disease Control website (https://www.cdc.gov/reproductivehealth/contraception/mmwr/mec/summary.html), as well as in an app for smartphones and tablets ("Contraception").

Summary

Seventy percent of the pregnancies occurring within 1 year from delivery are unintended [3, 4]. The American College of Obstetricians and Gynecologists (ACOG) recommends that long-acting reversible contraceptive (LARC) methods, both hormonal and nonhormonal, be offered to all appropriate candidates, given their superior efficacy in preventing unintended and close-interval pregnancy compared to short-acting methods [17]. Immediate initiation of LARC reduces the risk of unintended and close-interval pregnancy [4]. If the patient desires short-acting contraception, the provider must counsel the patient on failure rates associated with "perfect use" versus "typical use" [36, 37]. Additionally, if the patient desires short-acting estrogen-containing contraception, she must be counseled on the potential for decreased milk production and any potential contraindications to receiving estrogen. Ultimately, every woman must be counseled thoroughly on the advantages and disadvantages of every contraceptive method. It is the job of the provider to use evidence-based guidelines to recommend a suitable option for the patient.

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