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Postpartum Intrauterine Contraception

S. Gupta¹, A. Kubba²

The recognition of the extreme efficacy of LARC [long-acting reversible contraceptives] and the unmet need of postpartum and post abortion women has re-kindled interest in immediate postpartum insertion of intrauterine contraceptives. This article reviews the issues herein. **J Reproduktionsmed Endokrinol Online 2015; 12 (4): 251–4.**

Key words: intrauterine contraception, post partum, post placental

■ Introduction

Placement of intrauterine contraceptives in the immediate postpartum periods has been advocated since the 1970's. Though it is convenient and effective, it has not been widely accepted due to concerns around higher expulsion rates compared to interval insertions. 1:5 women in Britain have sexual intercourse by the time their child is 28 days old and are at risk of pregnancy. World wide, More than two thirds of women in the first postpartum year have an unmet need for family planning. 50% of adolescents often have repeat pregnancies within a year of giving birth. Use of LARC methods is associated with lower rates of repeat pregnancies at one and two years postpartum. The Intra-uterine device (IUD) and the subdermal implants have been found to be effective in reducing repeated pregnancies in the adolescent population by about three fold compared with their peers using no method [1]. Postpartum contraception can be of benefit to the woman and the health care provider such that the needs of women are met there and then, saving women the bother of seeking the method at a later date, where the healthcare system would need to provide a further appointment [2].

In the developing world, postpartum intrauterine devices (IUDs) could make a significant contribution to family planning programmes and contribute to limiting family size, but informed choice is paramount. Mexico and China have considerable experience in provision of postpartum IUDs, the most widely studied IUD in the postpartum period has been the T380 Cu-IUD. The Chinese postpartum experience was with stainless steel ring IUDs.

■ Does Postpartum Intra-uterine Contraception comply with National and International Guidelines?

WHO, UK Medical Eligibility Criteria (UKMEC), USMEC guidelines and the Summary of Product Characteristics (SmPC) differ in their advice. The WHO and the CDC support use of IUD in the postpartum period [1, 2]. WHO categories are – under 48 hours which includes insertion immediately after delivery of placenta and > 48 hours to under 4 weeks postpartum [3]. The CDC updated its guidelines on postpartum contraception and confirmed that IUD's and the levonorgestrel intrauterine system (LNG IUS) are not contra-indicated in the first 21 days after childbirth. USMEC considers placement within 10 minutes of delivery of placenta as USMEC 2 benefits outweigh the risks and 10 minutes to under 4 weeks of childbirth as USMEC 2–3 for both the LNG IUS and the Cu-IUD [4]. There is no guidance available on immediate postplacental insertion of intrauterine devices/systems in UK, and 48 hours to 4 weeks placement is UKMEC3 risks outweigh benefits.

The Summary of Product Characteristics of the LNG-IUSs (Mirena® and Jaydess®) advises a waiting period of six weeks postpartum in the UK. The SPC of the Cu-IUD advises similarly.

■ Is Easy Insertion Feasible?

Nulliparity, no history of vaginal delivery, anxiety, past history of cone biopsy of the cervix can be associated with painful insertion but during the postpartum period, the cervical os is open, which fa-

cilitates insertion with minimal if any discomfort. Four studies reported on feasibility of insertion of the LNG IUS. Placement of LNG IUS has been assessed as feasible in these studies, in two of these immediate postplacental (IPPI) vs delayed insertion or insertion at three different time points; (1) immediate –30 minutes, (2) early 10 min–48 hours postpartum or (3) interval more than six weeks postpartum were compared. Pain at insertion was significantly higher in the interval group ($p < 0.001$) when compared to the immediate and early groups [5].

They concluded that insertion of the LNG IUS is feasible under 48 hours and may be associated with similar utilisation at six months to the IUS placed at six weeks postpartum [6].

■ IPPI-Procedure

In the 1990's, the procedure has been described in China by two techniques – manually or by Ring forceps, the expulsion rates at six months were similar with both techniques [7]. However, IPPI requires special training and experience, expulsion rates can be reduced with higher insertion experience of the practitioner.

The advantages of delaying placement till 48 hours include the mum having stabilised after childbirth and initiated breast feeding and is therefore better placed to discuss the IUD/IUS.

■ Clinical Outcomes

Clinical outcomes have been studied in various settings in the US, China, Mexico, Turkey and Africa and are summarised under the following headings.

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How Effective are Postpartum IUDs?

A Turkish study looked at efficacy and complications of IPPI and EPP (early postpartum period) placements of IUDs. They studied 268 women, 84 were IPPI, 46 were EPP, 138 were at more than six weeks postpartum and found them equally effective [8].

Are Expulsion Rates Higher with Postpartum Placement?

Variable expulsion rates of 8–51% are reported in the studies, these rates must be balanced against the advantages of highly effective long-acting reversible contraceptive (LARC) coverage. Comparison is only possible for “like with like” and some studies have not taken into account age, parity, provider experience and length of follow up into consideration. Type of delivery and time of insertion in the postpartum period can also affect the expulsion rates. The length of endometrial cavity and the type of device may not be linked with higher expulsion rates.

The Chinese experience with postpartum IUD placement from five centres back in 1992 showed one year expulsion rates of IUDs inserted at LSCS were lower compared to rates for insertions following vaginal delivery [9]. Immediate insertions following vaginal delivery were associated with higher expulsion rates compared to those at Cesarean sections [10]. More recently, a five year experience of IPPI of a Cu-IUD following vaginal birth or Cesarean section at a tertiary care Centre in India reported a cumulative expulsion rate of 10.68 at six months [11]. Insertion at LSCS is associated with lower expulsion rates compared to vaginal post placental insertion [12]. Expulsion rates of IPPI of Cu-IUD (vaginal delivery or Cesarean Section) in Bundelkhand region (Jhansi) India were 3.1% at six weeks and 6% at six months [13].

Cumulative expulsion rates of 9% for IPPI and 37% for insertions up to 24–48 hours after delivery were reported in the United Nations Population Information Reports in 1996 [14]. Six month expulsion rates were studied in an African setting (Kenya and Mali) where rates were lower for IPPI compared to insertion between 10 minutes and 72 hours of delivery [15]. In 2004, a Turkish study showed

expulsion rates of 12.3% with IPPI of Cu-IUDs [16]. In 2006, another study from Turkey of 268 women showed a statistically significant increase in the incidence of complete and partial expulsions when Cu-IUDs were placed within 10 minutes and up to 48 hours of childbirth compared to those who had the device fitted at six weeks or more [17]. In 2009, Kapp et al conducted a systematic review of 15 studies, they concluded that IPPI was associated with significantly lower expulsion rates compared to insertions under 48 hours but still with higher rates compared to interval insertions [10].

Significantly higher expulsion rates were also reported with IPPI of the LNG IUS compared to the delayed insertion group and at six months follow up, expulsion had occurred in 12/50 vs 2/46 i.e. 24 vs 4%; $p = 0.008$ of women in the early and delayed groups respectively [18]. Grimes et al in 2010 reporting on a systematic review in the Cochrane database – nine RCTs were studied all showed expulsion was more likely for IPPI compared to the delayed or interval group (OR 6.77) [19]. Adding absorbable sutures to the IUD to “stabilise” it, did not appear beneficial in the Cochrane review, though, historical studies have attempted suturing the IUD in the uterus to increase retention of the device. Rates of expulsion were significantly higher in the early and immediate groups compared with the interval group [5]. IPPI of a Cu-IUD in 245 women studied in Turkey also showed a slightly higher expulsion rate at 17.6/100 women years but there was no control arm [20].

More recent data published in early 2015 reviewed 18 articles where the IUD was inserted in the postpartum period. They included both IPPI under 10 minutes and EPP between 10 minutes to 48 hours after delivery were safe but result in higher expulsion rates compared to insertions at 6–8 weeks postpartum or non postpartum insertions [12].

Is Postpartum Intrauterine Placement Associated with more Malpositioned Devices?

Only one retrospective study so far has looked at postpartum insertion as a risk factor for IUD malposition. Malpositioning was not associated with insertion at six to nine weeks postpartum (OR 1.46; 95%-CI: 0.81–2.63) [21, 22].

Postpartum Intrauterine Contraception: Continuation Rates

Dahike et al's feasibility study in 2011 [6] and Chen et al's study in 2010 [18] concluded that immediate postplacental insertion of LNG IUD within 10 minutes of delivery may be associated with similar utilisation at six months to interval placement at six weeks postpartum. The continuation rates of postpartum IUDs in a Turkish study at six and 12 months were 87.6 and 76.3% respectively [14]. The continuation rate of LNG IUS at six months was similar in both groups in the randomised trial of postplacental or delayed insertion of LNG IUS [18]. Similar continuation rates of LNG IUS at three and six months in the early and late insertion groups were reported in another study [5].

However, offering intrauterine contraception immediately postpartum is associated with higher uptake and therefore more women having an IUD/IUS at 6 months compared to those offered interval insertions [23].

Postpartum Intrauterine Contraception and Uterine Perforation

IUD/IUS perforations are rare events, are asymptomatic and may remain undetected for a long time. Risk factors were analysed in 8,343 women between 1996 and 2002 in Turkey, they noted that insertion 0–3 months postpartum increased the uterine perforation rate (OR 11.7) as did insertions at 3–6 months postpartum (OR 13.2). Insertions after six months postpartum did not increase the perforation rates in this study [24]. There was no statistically significant difference in the uterine perforation rates in the three groups of IPPI, early and interval insertions in another Turkish study [17]. The experience of the operator was not taken into account in the previous study thus introducing bias.

In the Finnish National hospital register retrospective study (1996–2000) of uterine perforations of an IUD/IUS, more than half the devices were inserted at more than six months postpartum, but, 32% of their patients were breast feeding. Postpartum lactation is considered a risk for device related uterine perforations [24]. In the IUS EURAS study, a total of 61,448 women were followed up in six European countries between 2006 and 2013 – overall, 81 uterine perfora-

tions (1.4/1000) occurred with the LNG IUS and 1.1/1000 with Cu-IUD. The LNG IUS was used by 46% of women and the Cu-IUD by 54% of women and breast feeding was associated with a six fold increase with no difference between LNG and Cu-IUD users, however, this increase is unlikely to be clinically significant as perforation rates were low [25].

Postpartum Contraception and Infection Rates

A Turkish study looked at infection rates in three groups of women where no significant difference in infection rates was noted [17].

Postpartum Contraception and Bleeding Problems – Are these More Common?

Puerperal and menstrual bleeding patterns were studied with different types of intrauterine devices placed during elective Cesarean delivery. The women were divided into 3 groups – (1) women without intrauterine contraception, (2) a copper device or (3) LNG IUS placed at Cesarean section. Women in the IUS group experienced a shorter lochia (20.2 $\pm$ 7] days vs 27.0 $\pm$ 11.4] days for copper devices [$p < 0.012$]). The bleeding was also significantly lighter in the IUS group with 3.1 ($\pm$ 1.6 pads) per day vs 4.9 ($\pm$ 2.3) pads per day in the Copper device group ($p < 0.001$). Mean duration of amenorrhoea was significantly longer at the end of the puerperium in the IUS group compared to the IUD control group [26].

Does/Can Postpartum Intrauterine Contraception Affect Breast Feeding?

There is little if any work on this subject. One study published in 2011 studied the effects of postplacental and delayed LNG IUS (6–8 weeks) insertion after vaginal delivery on the duration of breast feeding. IPPI was associated with shorter duration and less exclusive breast feeding [27]. As progesterone withdrawal is the trigger for lactation, some doctors have been hesitant to fit LNG IUS after placental delivery [28]. WHO MEC suggest delaying insertion of LNG IUS until 4–6 weeks postpartum in women who breast feed due to the possibility of hormonal effects in lactation [3].

However, a recent Cochrane review on hormonal contraceptives used postpar-

tum is reassuring in showing no effect on breast milk volume or content [29].

CDC MEC reported that the CuT380 A Cu IUD does not affect the quantity or quality of breast milk [30]. However, use of both the Cu-IUD and the LNG IUS should not be restricted in the immediate postpartum period if there is no infection [4]. Women who are breast feeding can safely use the Cu T 380 IUD or LNG IUS [3, 4].

Is the Incidence of Lost Threads Higher?

A prospective study of 530 women at one year follow up, reported that the IUD was *in situ* in 75% of the cohort. There were 8.3% expulsions and 12% women were lost to follow up. The strings could not be visualised in 9.8% of these women [11, 31].

Is Postpartum Intrauterine Contraception Cost-Effective?

A cost-effective analysis model from the United States compared IPPI with routine placement and concluded that IPPI prevented 88 pregnancies/1000 women over a two year time horizon. The model was most sensitive to the cost of an undesired pregnancy. For every 1000 women who desired a postpartum IUD, IPPI resulted in a cost savings of \$282,550 and a gain of 102 Quality of life years (QALY's) [32].

How do Women View Postpartum Intrauterine Contraception?

In Kenya, 671 women were recruited at six to twelve months postpartum – 16% chose the LNG IUS, 36% the injections, 30% subdermal implants and 15% POP. The reason for fewer women choosing intrauterine contraception was fear of pain at insertion, hormonal side effects and issues in relation to modesty [33]. In a prospective cohort study of 90 women from New York who had a Cu-IUD placed at Cesarean section, 80% reported being happy with the IUD at six months [34]. Another survey of women delivered in 2011 concluded that postpartum initiatives would be welcomed by women [35].

Conclusions

The postpartum period is an ideal time to initiate contraception, as women are highly motivated to accept contraception

and it is convenient for both women and providers, particularly for those who may not come back for their contraception. Placement is easy, discomfort is minimal, there are no adverse effects on breast feeding, but the expulsion rates are higher which requires further large randomised controlled trials. Even when higher expulsion rates were taken into account, given the barriers to postpartum insertion, at least as many if not more women will have an IUD in place at 12 months if insertion is performed postplacentally. Healthy interpregnancy intervals and spacing could reduce neonatal, infant and maternal mortality and morbidity [27].

Immediate postplacental IUDs are likely to improve access to contraception and reduce a substantial barrier to access. It prevents mistimed pregnancies in the first two years post the index pregnancy with substantial benefits to the woman, the newborn and existing children.

Key points

- Postpartum IUD/IUS placement is a real strategy in preventing unintended pregnancies, but patient informed choice is paramount.
- Postpartum IUD placement may improve use of highly effective contraception during the postpartum period.
- The experience of the operator and insertion technique are the most important factors impacting on success [8].
- High fundal placement of the device is required [8].
- Early follow-up may be important in IPPI to identify spontaneous IUD expulsions.

Conflict of Interest

AK receives fees for lectures and advice to several pharmaceutical companies involved in contraception. SG declares no conflict of interest.

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