

# INSERTION OF THE COPPER IUD (TCu 380A) IN THE IMMEDIATE POSTPARTUM: A STUDY IN YOUNG WOMEN IN THE BRAZILIAN AMAZON

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## ABSTRACT

*Objective: To evaluate the insertion of the Copper IUD (TCu 380A) in young women, side effects and users' degree of satisfaction with the method. The research site is the municipal public maternity hospital of Porto Velho, located in the state of Rondônia, in the Brazilian Amazon. Methodology: Standardized questionnaire with the following variables: Identification and address; Weight; PA; Consultation: Puerperal (3) months, (6) months, (9) months, (others); Pathological antecedents; Obstetric History: Gesta, Pará, Abt; Date of IUD insertion; Delivery type; Side Effects: (Pelvic pain), (Dysmenorrhea), (Dyspaurenia), (Hypermenorrhea), (Metrorrhea), (Anamia), (Other); Ultrasonography: Conduct. Results: In the year 2021, 1,463 parturients aged 15 to 25 years were seen at the maternity hospital, of these 982 (67.12%) had vaginal deliveries and 481 (32.88%) had cesarean deliveries). Of the 982 women who had vaginal deliveries, 312 (31.77%) underwent IUD insertion in the immediate postpartum (postplacental) period. Of the 982 women in the age group who had cesarean deliveries, 161 (33.47%) opted for IUD insertion after placental delivery. From the ultrasound examinations, it was observed that the IUDs were poorly positioned in 114 (11.60%) of those inserted in the vaginal puerperium and in 19 (4.57%) of those inserted by cesarean section after placental delivery. The main side effect in the first days of use, still in the*

*puerperium, was pelvic pain in 20.36% of all IUDs inserted postpartum (vaginal and cesarean), in the third month the most common complaint was dysmenorrhea in 24.47%. In the sixth month of use, dysmenorrhea (22%) was predominant, followed by hypermenorrhea (19.75%), and after the sixth month of use, dysmenorrhea (12.30%) was followed by hypermenorrhea (10.66%) as the most reported complaints. Conclusion: In regions such as the Brazilian Amazon, with high rates of unintended pregnancy in young women and consequently with complications of short interpregnancy intervals, long-term contraceptive methods (LARCs) offered in the puerperium are an option to be considered to reduce maternal mortality due to pregnancy.*

**Keyword:** Immediate Postpartum, Copper Iud (Tcu 380a), Brazilian Amazon.

## 1. INTRODUCTION

The postpartum period may be the opportune time to provide contraception to women who only go to the hospital during pregnancy and childbirth, and thus prevent an early pregnancy<sup>1</sup>. As most women are sexually active 6 (six) weeks after childbirth, the occurrence of an unplanned pregnancy could be a problem<sup>2</sup>. A viable alternative to avoid unwanted pregnancy in postpartum women would be the intrauterine device (IUD) as it is a long-lasting method that does not interfere with lactation<sup>3,4,5,6</sup>.

The return of postpartum ovulation occurs around 27 (twenty-seven) days in women who are not breastfeeding. However, in those who are breastfeeding, this interval is variable and can be extended for several months, while the newborn (NB) is exclusively breastfed. Thus, the duration of infertility caused by breastfeeding is unpredictable and there is no way to predict its occurrence. More than half of the lactating women ovulate before the first postpartum menstruation and, of these, 32 to 47% had a sufficient luteal phase for the evolution of a new pregnancy<sup>7,8</sup>. This fact is more worrying when it comes to underserved populations or with little access to health care.

The copper intrauterine device (IUD) is a long-term contraceptive method (LARC) that acts by producing an inflammatory reaction in the endometrium, and the consequent release of prostaglandins, transforming the uterine environment into an environment not conducive to implantation, leaving the cervical mucus more thick to slow down the passage of sperm and interfere with the transport of sperm in the genital tract by altering sperm and eggs through biochemical modifications<sup>9,10</sup>.

The copper T-IUD is considered highly effective (0.3 to 0.8% unintended pregnancy rates in one year of use), safe, long-acting (five to ten years) and does not interfere with lactation<sup>10,11</sup>. The model currently available in the Unified Health System (SUS) is the T380A IUD, which can remain in the body for up to 12 years. It is known that in its correct use, this device is capable of reducing pregnancy rates to 0.6%<sup>12</sup>. Indications and contraindications are the same for postpartum women, based on the WHO eligibility criteria (Table 1), varying only in relation to the time of postpartum insertion: category 2, if <48 hours; 3, if between 48 hours and four weeks; category 1, if  $\geq 4$ , weeks and category 4, if the puerperal woman has puerperal sepsis<sup>13</sup>.

Table 1 - Medical eligibility criteria for contraceptive methods according to the World Health Organization (WHO)

Category	Classification	clinical judgment
1	Condition for which there is no restriction on the use of the contraceptive method	Use the method under any circumstances
2	Condition when the advantages of using the method generally outweigh the theoretical or proven risks	Generally use the method
3	Condition in which the proven or theoretical risks generally outweigh the advantages of using the method	Use of the method is not recommended unless more suitable methods are not available or not acceptable
4	Condition that poses an unacceptable health risk if the contraceptive method is used	do not use the method

Source: Adapted from the World Health Organization (WHO) <sup>13</sup>

The appropriate time for its insertion in the puerperium is still controversial: whether immediately after placental delivery, in the immediate postpartum period (ten minutes to 48 hours) or after six weeks of delivery. Expulsion rates vary depending on timing, insertion technique, and IUD type. IUD insertion in the immediate postpartum period is popular in many countries, but there are no randomized clinical trials comparing its placement in the immediate postpartum period versus its postponement<sup>14</sup>. The WHO demonstrates expulsion rates of around 20% for insertion in the immediate postpartum period, in one year of use, varying according to the IUD inserted. Expulsion is less common with a T-copper IUD. If inserted after immediate placental delivery, in the uterine fundus, by a trained and experienced physician, it has expulsion rates in six months of 7 to 15% and 2.0 to 2.8% of unplanned pregnancies, in two years<sup>15</sup>.

Providing long-acting reversible contraceptives in the postpartum period improves access to reproductive planning for women who have a desire to space or even limit future pregnancies. Offering these methods during prenatal consultations, both in referral hospitals and in basic health units, can be an effective strategy in reducing unplanned pregnancies<sup>16,17,18</sup>.

Among contraceptive methods, the IUD is a safe, effective, long-lasting and reversible option<sup>19</sup>. There are still barriers related to this method, such as the lack of information from patients. Therefore, it is necessary to educate the population and health professionals in order to motivate users and train health teams in relation to the use of the IUD<sup>20,21,22</sup>.

The early interruption of this method is higher among women who did not receive specific information about it<sup>20,23,24</sup>. Before the patient who inserted the IUD in the postpartum period is discharged, it is important to share information on possible complications or signs that may indicate alert

or IUD expulsion<sup>19</sup>. The aim of the study is to evaluate the insertion of the Copper IUD (TCu 380A) in young women, side effects and users' degree of satisfaction with the method. The research site is the municipal public maternity hospital of Porto Velho, located in the state of Rondônia, in the Brazilian Amazon.

## **2 METHODOLOGY**

Upon admission of the parturient to the maternity ward, the postpartum IUD is offered by the multidisciplinary team, and the benefits and risks of the IUD are informed, and if the patient expresses the desire, the same or the legal guardian, if he or she is a minor, signs a Consent Term/Assent to Insertion of the IUD in the immediate postpartum period, shortly after placental delivery during a cesarean section or after vaginal delivery. Immediate post-placental insertion refers to insertion within 10 minutes of delivery.

At hospital discharge, these users are referred, through consultations still in the maternity ward, to an outpatient Reproductive Planning (PR) follow-up 30 to 45 days after delivery, and a transvaginal ultrasound examination is also requested at discharge, to assess the placement of the IUD. In the scheduled postpartum consultation, the position of the IUD, side effects and degree of satisfaction with the method are evaluated. And the monitoring of these users is quarterly, through a standardized questionnaire with the following variables: Identification and address; Weight; PA; Consultation: Puerperal (3) months, (6) months, (9) months, (others); Pathological antecedents; Obstetric Background: Gesta, Para, Abt; Date of IUD insertion; Type of delivery; Side effects: (Pelvic pain), (Dysmenorrhea), (Dyspareunia), (Hypermenorrhea), (Metrorrhea), (Anamia), (Others); Ultrasonography: Conduct.

## **3. RESULTS AND DISCUSSION**

### **3.1 In maternity**

In the year 2021, 1,463 parturients aged 15 to 25 years were seen at the maternity hospital, of these 982 (67.12%) had vaginal deliveries and 481 (32.88%) had cesarean deliveries (Table 2).

Table 2 – Total number of vaginal and cesarean deliveries of women aged 15 to 25 years, in a maternity hospital in the Brazilian Amazon in the year 2021

<b>Month</b>	<b>vaginal delivery</b>		<b>cesarean delivery</b>		<b>Total</b>	
	<b>N</b>		<b>N</b>		<b>N</b>	
	<b>%</b>	<b>%</b>	<b>%</b>	<b>%</b>	<b>%</b>	<b>%</b>
January	94	35	29	9,58	7,27	8,82
February	89	40	129	9	8,31	8,82
March	100	54	154	10,20	11,22	10,52

April	90	39	129
	9,17	8,12	8,82
May	99	39	138
	10,09	8,12	9,43
June	70	46	116
	7,12	9,57	7,93
July	84	39	123
	8,55	8,10	8,40
August	77	39	116
	7,85	8,10	7,93
September	76	46	122
	7,75	9,57	8,34
October	69	32	101
	7,02	6,65	6,90
November	46	26	72
	4,7	5,40	4,93
December	88	46	134
	8,97	9,57	9,16
<b>Total</b>	<b>982</b>	<b>481</b>	<b>1.463</b>

Source: Medical Statistics Service/MMME, 2022.

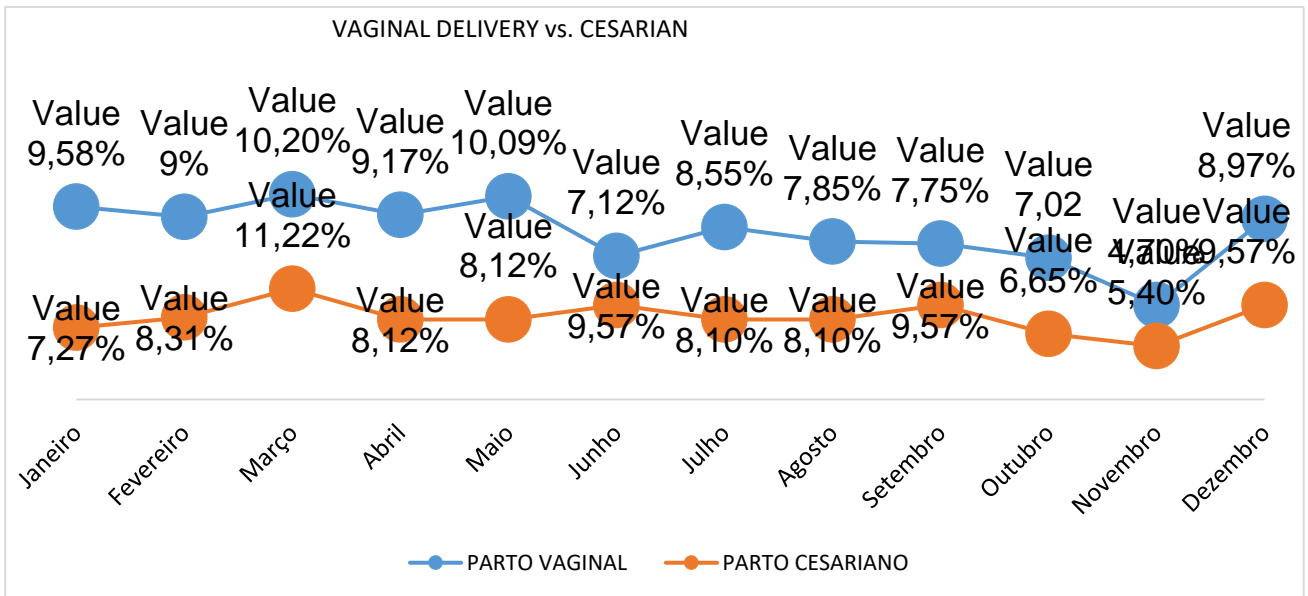


Figure 1- Proportion of vaginal deliveries versus cesarean deliveries

We can see in Table 3 that of the 982 women aged 15 to 25 years who had vaginal deliveries, 312 (31.77%) underwent immediate postpartum (post-placental) IUD insertion.

Table 3 – Number of IUDs inserted after vaginal delivery, aged 15 to 25 years, in a maternity hospital in the Brazilian Amazon, in the year 2021.

Month	vaginal delivery		IUDs inserted	
	N	%	N	%
January	94	9,58	26	27,65
February	89	9	21	23,59
March	100	10,20	43	43
April	90	9,17	36	40
May	99	10,09	30	30,3
June	70	7,12	27	38,57
July	84	8,55	16	19,04
August	77	7,85	24	31,16
September	76	7,75	21	27,63
October	69	7,02	23	33,33
November	46	4,70	15	32,60
December	88	8,97	30	34,09
<b>Total</b>	<b>982</b>		<b>312</b>	

Source: Medical Statistics Service/MMME, 2022.

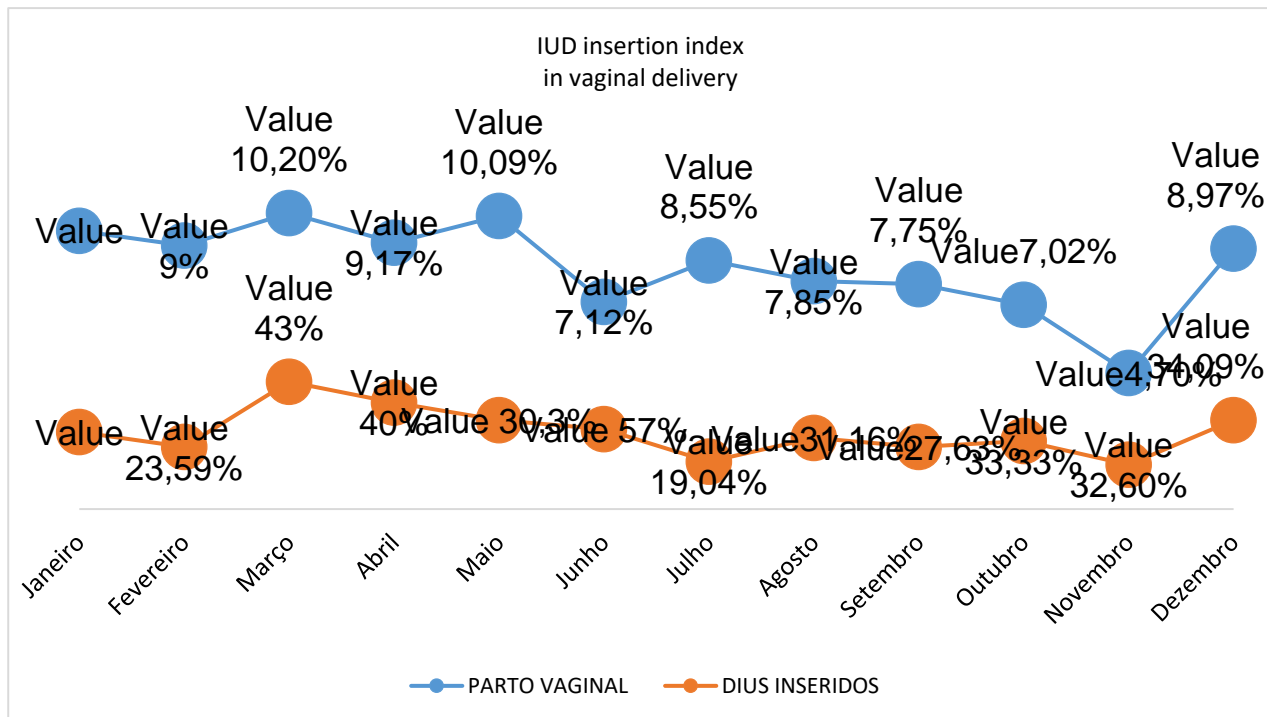


Figure 2- IUD insertion index in vaginal delivery

Table 4 shows that of the 982 women aged 15 to 25 years who had cesarean deliveries, 161 (33.47%) opted for IUD insertion after placental delivery.

Table 4 – Number of IUDs inserted after cesarean delivery, aged 15 to 25 years, in a maternity hospital in the Brazilian Amazon, in 2021.

Month	cesarean delivery		IUDs inserted	
	N	%	N	%
January	35	7,27	7	20
February	40	8,31	19	47,5
March	54	11,22	21	38,88
April	39	8,12	9	23,07
May	39	8,12	9	23,07
June	46	9,57	9	19,56
July	39	8,1	14	35,89
August	39	8,1	14	35,89
September	46	9,57	18	39,13
October	32	6,65	13	40,62
November	26	5,4	12	46,15
December	46	9,57	16	34,78
<b>Total</b>	<b>481</b>		<b>161</b>	

Source: Medical Statistics Service/MMME, 2022.

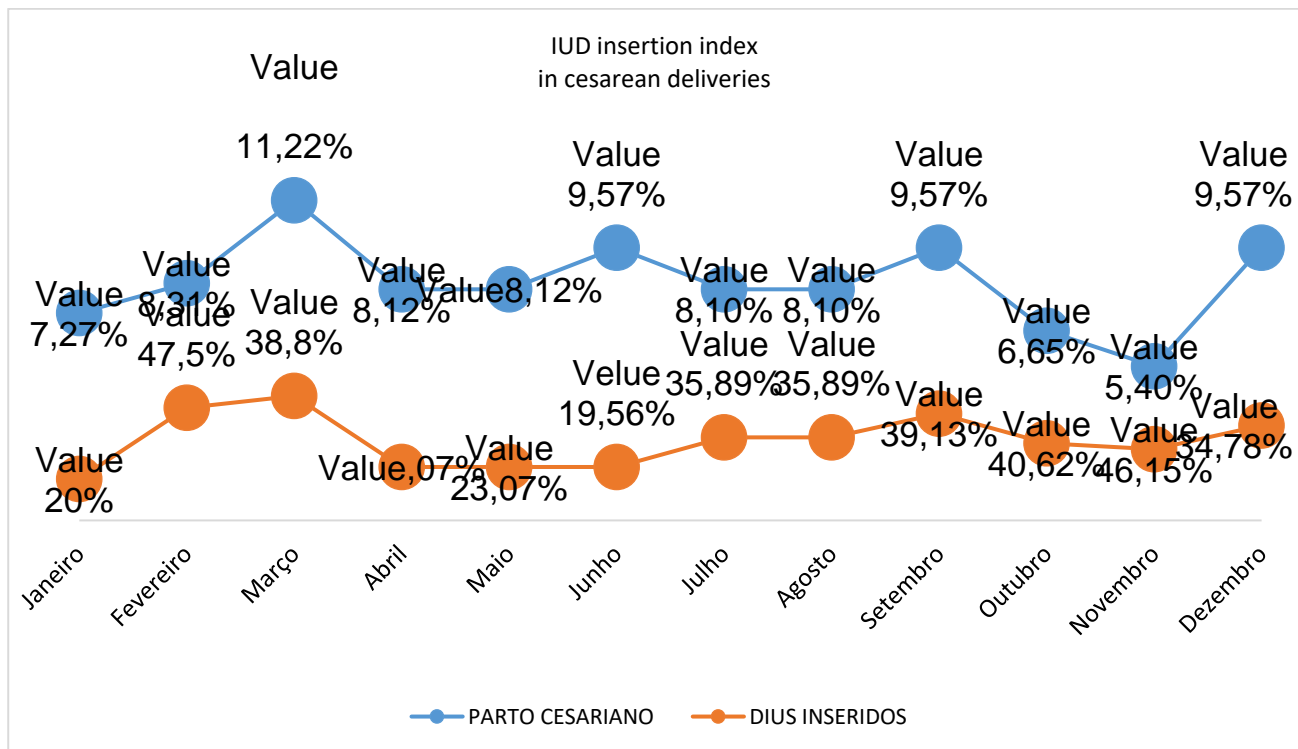


Figure 3- IUD insertion index in cesarean deliveries

**3.2 From the reproductive planning clinic**

Upon being discharged from the hospital, all these puerperal women were referred to the reproductive planning (PR) outpatient clinics of the Reference Center for Women's Health (CRSM), with appointments scheduled during the puerperium (from 30 to 45 days postpartum). And, they presented the ultrasound exam requested at hospital discharge, to visualize the presence of the IUD in the cavity, position and/or expulsion of the same. In addition to checking its side effects and continuity of use.

We can see in Table 5, through ultrasound exams, that the IUDs were poorly positioned in 114 (11.60%) of those inserted in the vaginal postpartum period and in 19 (4.57%) of those inserted in the cesarean section after placental delivery.

Table 5 – Follow-up of postpartum women using IUDs at the Reproductive Planning outpatient clinic in the year 2021.

Type of Delivery	DIU IUD expelled		IUD poorly positioned	
	N	%	N	%
Vaginal	161	16,39	114	11,6
Caesarean	42	8,73	19	4,57

Source: Medical Statistics Service/CRSM, 2022

Copper 380A T IUD users were subsequently followed up every three, six and nine months by gynecologists and resident physicians at the PR outpatient clinics to check for side effects such as: pelvic pain, dysmenorrhea, hypermenorrhe, metrorrhagia, anemia, as well as continued use of the IUD inserted postpartum.

We observed that the main side effect in the first days of use, still in the puerperium, was pelvic pain in 20.36% of all IUDs inserted postpartum (vaginal and cesarean), in the third month the most common complaint was dysmenorrhea by 24.47%. In the sixth month of use, dysmenorrhea (22%) was predominant, followed by hypermenorrhea (19.75%), and after the sixth month of use, dysmenorrhea (12.30%) was followed by hypermenorrhea (10.66% ) as the most reported complaints (Table 6).

Table 6 – Main side effects of T copper IUD users inserted in the vaginal and cesarean postpartum period in a maternity hospital in the Brazilian Amazon, in the year 2021.

Side effect	30 to 45 Days		3 months		6 months		After 6 Months	
	N	%	N	%	N	%	N	%
pelvic pain	298	20,36	180	12,30	86	5,87	00	00
dysmenorrhea	00	00	358	24,47	322	22	180	12,30
hypermenorrhea	00	00	163	11,14	289	19,75	156	10,66



metrorrhagia	00	153	00	00
	00	10,45	00	00
Anemia	87	122	152	76
	5,9	8,33	10,38	5,19
no change	897	431	595	1.051
	61,31	29,46	40,66	71,83
discontinued use	181	56	19	00
	12,37	3,82	1,29	00

Source: Medical Statistics Service/CRSM, 2022

When a long-term contraceptive method is offered to young women, prior to arrival at the maternity hospital (during prenatal care) or at the time of admission for childbirth, if all the advantages and disadvantages are clarified, as well as the side effects, has a high rate of acceptance of LARCs in the immediate postpartum period.

Follow-up consultations should be carried out systematically, the first being still in the puerperium and then every 3 months, so that the positioning and permanence of the intrauterine IUD can be evaluated, so that it can be reinserted if the user wishes, correct side effects to increase the permanence rate of IUD use.

A study describes that follow-up consultations for adolescent and young women who inserted the IUD in the postpartum period could be carried out through scheduled or unscheduled phone calls, outpatient consultations and emergency consultations for 6 months after the insertion of the IUD<sup>25</sup>. Users were encouraged to undergo a clinical evaluation at 2 weeks, 6 months, and 12 months after IUD insertion. In this consultation, patients received guidance on possible common side effects and their management<sup>25</sup>. In addition, 6% of patients had at least one consultation and follow-up. Only 7.8% of cases discontinued their device, with discontinuation mostly occurring between 5 and 6 months after insertion. The main reason for discontinuation among IUD users was side effects<sup>25</sup>.

In that same study, it was reported that follow-up rates remained high even after 3 months of insertion. Most women were adolescents and young adults, and had at least one follow-up visit after 6 months of insertion. Women with more frequent revisions were less likely to discontinue the method early<sup>25</sup>.

Regarding the expulsion rate of the T copper 380A IUD inserted in the immediate postpartum period, we observed that in the postpartum vaginal insertion (16.39%) it was higher than in the postpartum cesarean section (8.73%). Regarding the rate of IUD malposition visualized by early ultrasound, it was also higher in the vaginal postpartum period (11.6%) than in the cesarean postpartum period (4.57%), probably due to the insertion technique, which in the cesarean section the uterus is opened by hysterotomy and the IUD is well inserted into the uterine fundus, which corroborates with several studies<sup>26,27,28</sup>. In a systematic review<sup>28</sup>, it was evidenced that the insertion of the IUD soon after delivery of the placenta, regardless of the mode of delivery, is associated with a lower rate of expulsion than when compared with insertion at any other time in a woman's reproductive life.

In a study where 16% of patients who inserted the IUD postpartum vaginally were more likely to expel the device. No patient who inserted the IUD postpartum by cesarean section had expulsion. However, users who had a surgical delivery had a greater need for ultrasound to evaluate the positioning

of the IUD, since the wires were not felt by the user or visualized in the specular examination<sup>30</sup>. When comparing IUD expulsion after vaginal delivery and after cesarean section, four studies concluded that there are higher rates of device expulsion after vaginal delivery, regardless of whether the IUD used was copper or hormonal<sup>1,2,30,31</sup>. When this is placed at the time of the cesarean, the cervix is not fully dilated, making it more difficult for the IUD to be expelled through the cervical canal. The same study concluded that it is easier to get the proper placement of the hormonal IUD during cesarean delivery because the entire uterus can be visualized<sup>32</sup>. In cesarean, the uterine fundus can be reached more easily, making it difficult to expel the device<sup>27</sup>.

#### **4. CONCLUSION**

This study made it possible to identify that: Patients who insert the IUD after cesarean delivery are less likely to expel it, but require more imaging, since the threads are less visible on speculum examination. Side effects such as pain, bleeding and poor positioning can occur in the first to 8 weeks post-IUD insertion immediately postpartum (“post-placental”). Strategies for assessing IUD malposition are early ultrasound, which should be performed at 6 to 9 weeks, as well as speculum examination to check the thread size, starting at 4 weeks post-insertion. Follow-up consultations can be carried out through programmed and systematized telephone calls, with the outpatient clinic. Possible complications and warning signs, such as pain and changes in the pattern of genital bleeding need to be reported to patients soon after discharge so that they can recognize interurrences that may appear after insertion of the device, such as expulsion.

When counseling on post-insertion side effects is provided in follow-up consultations, this improves patient expectations and satisfaction, positively impacting understanding of the method and acceptance of use. Counseling in follow-up consultations is an appropriate intervention. The follow-up of women can be performed by primary care professionals who have received training on postpartum IUD follow-up, in the clinic or emergency services for six months after device insertion. During IUD follow-up consultations, specialist professionals and those in the basic unit must be prepared to, whenever possible, manage and solve the unwanted effects that may arise. Conduct training and capacity building for health professionals on long-acting contraceptive methods with a focus on the IUD to improve the quality of information provided to patients.

Finally, it is concluded that in regions with high rates of unwanted pregnancies and consequently with complications of short intergestational intervals, long-term contraceptive methods (LARCs) offered in the puerperium, when there is a window of opportunity for the patient to access the health service, are an option to be considered in order to reduce maternal mortality resulting from unwanted pregnancies.

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