Immediate Postpartum Long-acting Reversible Contraceptives (LARC) Among Low- versus High-Risk Obstetric Populations

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KEYWORDS: contraception, postpartum, long-active reversible contraception, health equity, pregnancy

BACKGROUND

While long-acting reversible contraceptives (LARC) – intrauterine devices (IUD) and contraceptive implants – offer exceptional pregnancy prevention, the United States (US) has a long history of contraceptive coercion. Contraceptive coercion is behavior from medical providers/institutions/individuals that interferes with one's ability to make choices regarding their reproductive health. Coercive practices regarding the prescription of contraceptives has been shown to systematically affect patients of color and those with lower socioeconomic status.[1-3] Prior studies have shown that these patients are more likely to receive LARC devices than White affluent patients, and that this may be due to coercion.[3,4] Multiple methods of contraception counseling have been studied in order to improve equitable care. Until recently, tiered-effectiveness-based counseling was the standard training.[1] However, effectiveness may not be a patient's sole goal and open-ended counseling is now recommended.[1] Moreover, disparities in contraceptive counseling may also be affected by differences in rates of medical comorbidities in pregnancy, driven in large part by inherent systemic racism in the US.[5]

Patients who undergo high-risk deliveries may be more likely to use a LARC method, when compared to patients with low-risk pregnancies, which may be due to the intersecting effects of racism, classism, and providers' pre-conceived recommendations based on the patient's medical comorbidities. Prior to being able to investigate the presence or rates of contraceptive coercion in low- versus high-risk patients, usage of immediate postpartum LARC in these two groups must be assessed. Our objective was to determine if rates of immediate postpartum LARC use differed between high- and low-risk obstetric populations.

STUDY DESIGN

We performed a retrospective cohort study of patients who delivered at a single academic center in 2019 with the high- and low-risk hospital obstetric services. Detailed chart abstraction of prenatal visits and delivery information was performed by trained research staff. The primary outcome was immediate postpartum LARC placement (post-placental IUD or contraceptive implant). Multivariable logistic regression was calculated, adjusting for confounders which differed between groups on bivariate analysis.

RESULTS

From the patients included in this analysis, 236/355 (66%) delivered with the low-risk service. Patients who delivered with the low-risk service were less likely to be White (28.3% vs 54.6%), more likely to be of Latinx ethnicity (62.5% vs 32.2%), and more likely to have public insurance (85.8% and 65.3%) than those who delivered with the high-risk service (p<0.001 for all).

No significant difference was seen between high- and low-risk patients in regards to receiving immediate postpartum

Table 1. Patient Demographics

	Low-Risk Service (N=236)	High-Risk Service (N=119)	p-value
Maternal age, median (IQR)	26 (22–31)	30 (26–37)	**<0.001**
Maternal BMI, median (IQR)	31.2 (27.3–36.3)	33.1 (28.9–39.2)	**0.04**
Maternal Race			**<0.001**
Black	37 (16.1)	18 (15.1)	
White	65 (28.3)	65 (54.6)	
Asian/Pacific Islander	6 (2.6)	3 (2.5)	
Indigenous	15 (6.5)	2 (1.7)	
Other	107 (46.5)	31 (26.1)	
Maternal Ethnicity			**<0.001**
Latinx	140 (62.5)	37 (32.2)	
Non-Latinx	84 (37.5)	78 (67.8)	
Insurance provider			**<0.001**
Medicaid/Publicly funded	200 (85.8)	80 (68.3)	
Private/Commercial	31 (13.3)	34 (29.1)	
Self-pay/No insurance	2 (0.9)	3 (2.6)	
No. prenatal visits, median (IQR)	10 (7–-12)	8 (5–11)	**0.01**
Nullipara	75 (31.8)	27 (22.7)	0.08

Fisher's exact test was used for analysis of categorical variables and Wilcoxon rank sum test was used for analysis of continuous variables. Significance at p<0.05.
Data presented as N(%) unless otherwise specified
IQR = interquartile range

IUDs. However, patients who delivered with the low-risk service received contraceptive implants in the immediate postpartum period more frequently than those who delivered with the high-risk service (19.2% vs 7.7%, p<0.005). This difference was no longer seen after adjustment for age, body mass index (BMI), gestational age, non-White race, Medicaid insurance status, cesarean delivery and nulliparity (adjusted odds ratio for high-risk patients to receive implant 0.51 95% CI 0.21–1.27). Contraceptive counseling was documented in the medical chart more frequently among high-risk patients (59.7% vs 46.2%, p<0.001). (See **Tables 1,2,3**)

Table 2. Maternal medical and delivery characteristics

	Low–Risk Service (N=236)	High–Risk Service (N=119)	p–value
Prior cesarean	35 (15.0)	29 (24.6)	**0.04**
Maternal medical comorbidities	0	7 (5.9)	–
Pregestational diabetes	4 (1.7)	4 (3.4)	0.45
Chronic Hypertension	0	4 (3.4)	–
VTE	2 (0.9)	1 (0.8)	1.00
CHD	0	1 (0.8)	–
Coronary artery disease	2 (2.7)	2 (2.9)	1.00
Migraine with aura	13 (5.5)	7 (5.9)	0.24
Migraine without aura			
Maternal medical comorbidity (combined)*	30 (12.71)	27 (22.7)	**0.02**
Gestational age at delivery, median (IQR)	39.3 (38.3–40.1)	37.3 (34.9–39)	**<0.001**
Preterm birth (<37 weeks')	20 (8.6)	47 (40.2)	**<0.001**
Mode of delivery			**<0.001**
Spontaneous vaginal delivery	168 (71.2)	57 (47.9)	
Operative vaginal delivery	17 (7.2)	8 (6.7)	
Cesarean delivery	51 (21.6)	54 (45.4)	
Mode of Anesthesia			0.06
None	23 (9.8)	10 (8.5)	
Local/pudendal	8 (3.4)	0	
Nitrous oxide	3 (1.3)	0	
Neuraxial	199 (85.1)	105 (89.0)	
General anesthesia	1 (0.4)	3 (2.5)	
Estimated blood loss mL (median, IQR)	350 (300–500)	500 (350–700)	**<0.001**
Delivery Complications			
Unplanned Cesarean	20 (8.5)	27 (22.7)	**0.03**
Postpartum hemorrhage	7 (3.0)	3 (2.5)	0.29
Intra–amniotic infection	14 (5.9)	2 (1.7)	**0.03**
Preeclampsia/Eclampsia	17 (7.2)	9 (9.0)	0.47
ICU admission	0	2 (1.7)	–
OASIS	1 (0.4)	1 (0.8)	–
Delivery Complication	59 (25.0)	40 (33.6)	0.10

Fisher's exact test was used for analysis of categorical variables and Wilcoxon rank sum test was used for analysis of continuous variables. Significance at p<0.05.

Data presented as N(%) unless otherwise specified

IQR = interquartile range, VTE = venous thromboembolism, CHD = congenital heart disease, ICU = intensive care unit, OASIS = obstetric anal sphincter injury

*Maternal medical comorbidity is comprised of: pregestational diabetes, chronic hypertension, VTE, CHD, coronary artery disease, migraines with and without aura.

Table 3. Contraceptive Counseling and Device Placement

	Low-Risk Service (n=236)	High-Risk Service (n=119)	p-value
Desired contraceptive method antepartum [n (%)]			
None	17 (7.2)	12 (10.8)	0.41
Barrier contraception	8 (3.4)	0	—
Combination oral contraception	5 (2.1)	1 (0.8)	0.67
Progestin only pills	3 (1.3)	6 (5.0)	0.07
Patch/Ring	7 (3.0)	5 (4.2)	0.55
Depot medroxy-progesterone	11 (4.7)	3 (2.5)	0.40
Levonorgestrel IUD	24 (10.2)	18 (15.1)	0.22
Copper IUD	16 (6.8)	2 (1.7)	**0.04**
Implant	46 (19.5)	7 (5.9)	**<0.001**
Tubal sterilization	20 (8.5)	24 (20.2)	**0.003**
Vasectomy	0	0	—
Not documented	79 (33.5)	41 (34.5)	0.91
Counseling documented? [n (%)]	109 (46.2)	71 (59.7)	**<0.001**
Counseling method: [n (%)]			0.15
Open-ended	18 (12.2)	5 (5.3)	
Tiered	18 (12.2)	8 (8.4)	
Other	1 (0.7)	1 (1.0)	
Not documented	110 (74.9)	81 (85.3)	
Immediate postpartum LARC [n (%)]			
None	174 (74.4)	94 (80.3)	0.30
Levonorgestrel IUD	11 (4.7)	12 (10.3)	0.07
Copper IUD	4 (1.7)	2 (1.7)	1.00
Implant	45 (19.2)	9 (7.7)	**0.005**

Odds Ratio for Immediate Postpartum LARC among High-risk Patients*

LARC	OR High-Risk [OR (95% CI)]	aOR† High-Risk [OR (95% CI)]	aOR‡ High-Risk [OR (95% CI)]
Levonorgestrel IUD	2.29 (0.98–5.37)	1.94 (0.60–6.33)	**2.55 (1.01–6.39)**
Copper	0.99 (0.18–5.49)	0.78 (0.09–6.67)	0.63 (0.09–4.26)
Implant	**0.35 (0.16–0.74)**	0.51 (0.21–1.27)	0.45 (0.20–1.00)

Fisher's exact test and multivariable logistic regression used for analysis. Significance at p<0.05.

IUD = intrauterine device, LARC = long-acting reversible contraception, OR = Odds Ratio

*As compared to low-risk patients (reference group)

†Adjusted for age, nulliparity, cesarean, maternal BMI, GA at delivery, Medicaid, non-White race.

‡Adjusted for maternal medical comorbidities, delivery complications and preterm birth

CONCLUSION

We did not identify a statistically significant difference in rates of immediate postpartum LARC uptake in the study population after demographic adjustment between high- and low-risk obstetrics populations. Therefore, we suspect that other factors may outweigh the impact of high- versus low-risk status on contraceptive counseling. Further prospective study of provider behaviors and patients' perceptions about the use of postpartum contraception is needed, particularly among people from historically-excluded populations, as are broader studies of metrics of contraceptive coercion for the clinical setting.

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Disclosures

None

Acknowledgment

Paper presented as a poster "Immediate Postpartum LARC Use in a Low versus High-Risk Academic Practice" (#949) at the Society for Maternal-Fetal Medicine's 43rd Annual Pregnancy Meeting, February 10, 2023, San Francisco, CA.

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