

Failure of effective contraception in opioid addicted mothers: a disparity in planned and actual usage

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ABSTRACT

The ongoing opioid epidemic in West Virginia has given rise to a unique population of opioid-addicted obstetric patients. Appropriate education, counseling, and implementation of contraception is of extreme importance among this high-risk patient population. This study was a retrospective chart review aimed at evaluating contraception choice and initiation rates among patients enrolled in a maternal buprenorphine maintenance program compared to non-opioid addicted patients. Rates of planned contraception initiation were compared between the two groups. Rates of actual contraception initiation were also compared. Contraceptive choices were then placed into one of three tiers based on efficacy, and rates of initiation of equivalent, less effective, or more effective methods of contraception were compared between the groups. Rates of compliance to planned contraceptive method were low for both groups and not statistically different between the two. Use of long acting reversible contraceptives was statistically higher among the control population. Compared to the control group, a significant number of women in the opioid group received less effective contraception than planned. This study shows that the high-risk population of opioid addicted patients did not receive high efficacy, long lasting contraception at the same rate as their non-opioid addicted peers.

KEYWORDS

Contraception, postpartum, opioid addiction

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INTRODUCTION

As of 2015, West Virginia led the nation in the rate of opioid overdose deaths at 41.5 per 100,000.¹ This rate is more than two times the national average, and 33 percent greater than the two next closest states, Kentucky and Ohio.¹ As rates of opioid abuse and overdose continue to climb across the nation and within West Virginia, a high risk obstetric population of opioid abusers has emerged presenting several unique problems involving pre-conception, antepartum, postpartum, and neonatal care. The prevalence of unintended pregnancies is significantly increased from 31-47% for the general population to 84% among opioid abusers.² This high-risk population is also at increased risk for rapid repeat pregnancy.

Babies born to mothers using or abusing opioids are at risk for Neonatal Abstinence Syndrome (NAS), a drug withdrawal syndrome that presents after birth.³ When taken together, these issues make simple, affordable, reliable contraception methods a priority among opioid abusers.

Contraception can be provided inpatient following a delivery or during the postpartum visit. The American College of Obstetrics and Gynecology (ACOG) currently recommends a postpartum visit for uncomplicated pregnancies between four and six weeks,⁴ however, 10-40% of women do not attend their postpartum visits.⁵ Risk factors for non-compliance with postpartum visits include lower levels of education, no prenatal care, and low



income.⁶ If women miss this visit and do not receive further counseling regarding contraceptive options or implementation, they are at significant risk for unintended pregnancy.

The type of contraceptive method also is important in preventing unintended pregnancies. Compared to other forms of contraception, long acting reversible contraceptive (LARC) methods do not require significant user effort to be effective.⁷ There is an 87% continuation rate among LARC users, compared to 57% continuation among short-acting contraception users, and LARC users have higher overall satisfaction with their choice of contraception.⁸ The efficacy of LARC methods is also comparable to surgical sterilization methods such as bilateral tubal ligation (BTL) or vasectomy.⁷ For patients desiring any form of contraception, assuring accessibility is paramount.

The goal of this study was to assess postpartum contraceptive method choice and compliance, postpartum follow up and incidence of rapid repeat pregnancy among high risk addicted pregnant patients at Marshall University School of Medicine Department of Obstetrics and Gynecology Outpatient Center.

METHODS

This study was a retrospective chart review evaluating contraception choice and initiation rates among patients enrolled in a maternal buprenorphine maintenance program compared to non-opioid addicted patients. The Maternal Addiction and Recovery Center (MARC) is an opioid replacement program for high risk opioid addicted pregnant patients. This program is comprised of low income, low educational attainment opioid addicted patients. This group was compared to the general patient population within the residents' outpatient clinic at the same academic institution. We defined the study population as those patients actively enrolled into the MARC program for their obstetric care from 2010-14. We defined the control population as those patients following with the OB/GYN resident clinic at the same institution for obstetric care during that same time period. Retrospective chart review evaluated patient contraceptive choice prior to delivery as documented

in the prenatal record, actual contraception initiated following delivery, and compliance or successful implementation of contraception within six weeks of delivery. Follow up at the six week postpartum visit was also recorded. Additional data included age, race, gravidity, parity, mode of delivery, smoking status, and history of sexually transmitted disease. The study period was chosen to allow a year of follow up after delivery to also assess rates of rapid repeat pregnancy (defined as repeat pregnancy within one year of delivery).

Contraceptive methods offered by the institution included bilateral tubal ligation (BTL), vasectomy, intrauterine device (IUD), subdermal implant, depomedroxyprogesterone acetate (DMPA), oral contraceptive pill, transdermal patch, ring, and condoms. Subjects undecided or who did not desire contraception were classified as such. For comparison purposes, methods were grouped according to efficacy. LARC methods and sterilization methods were grouped as Tier 1 efficacy, the pill, patch, ring, DMPA were grouped as Tier 2, and condoms, undecided and none were grouped as Tier 3 efficacy.

Contraceptive use, follow up, rapid repeat pregnancy rates and changes in contraceptive efficacy (from what was planned to what was actually given) were compared between the MARC subjects and resident clinic subjects. Statistical analysis was completed using Small Stata 14.2. Continuous variables were analyzed using t-test and categorical variables were analyzed by chi square or Fisher's exact test. Institutional review board was obtained prior to study commencement.

RESULTS

There were a total of 207 subjects included in the study. The MARC group included 61 patients, while the resident clinic (RC) included 146 patients. Table 1 shows basic demographic information between the two groups. There was no difference in groups among age, race, mode of delivery or other sexually transmitted diseases. The MARC group had a statistically higher prevalence of subjects covered by Medicaid, subjects who were smokers, and subjects



Table 1. Basic Demographics among MARC patients and Resident clinic patients.

	MARC Patient n = 61	Resident's Clinic n = 146	P value
Age (mean ± SD)	26.6 ± 5.1	26.2 ± 5.8	0.60
Insurance ^A	42 (68.9%)	146 (100%)	0.005
Medicaid	39 (92.9%)	99 (67.8%)	
Medicare	0 (0.0%)	3 (2.1%)	
Other	3 (2.1%)	44 (30.1%)	
Race			0.11
Caucasian	61 (100%)	140 (95.9%)	
Black	0 (0%)	6 (4.1%)	
Delivery Mode			0.22
Vaginal	40 (65.6%)	82 (56.2%)	
C-section	21 (34.4%)	64 (43.8%)	
Smokers in group	54 (88.5%)	42 (28.8%)	<0.001
Patients with Hepatitis C	34 (55.7%)	8 (5.5%)	<0.001
Patients with other STD	11 (18.0%)	14 (9.6%)	0.09

TABLE 1. Missing Values not included in percentages.

^ANumber of patients who reported their insurance.

Method	MARC Planned Contraception (N=61)	MARC Actual Contraception N (% from planned)	RC Planned Contraception (N=146)	RC Actual Contraception N (% of planned)	P value
IUD	4	1 (25%)	25	11 (44.0%)	0.62
Implant	2	0 (0%)	4	2 (50.0%)	0.47
BTL	23	13 (56.5%)	30	20 (66.7%)	0.45
Vasectomy	0	0 (0%)	4	4 (100%)	-----
DMPA	5	2 (40%)	11	7 (63.6%)	0.59
Pill	4	3 (75%)	19	15 (78.9%)	0.21
Ring	0	0 (0%)	1	1 (100%)	-----
Patch	0	0 (0%)	1	0 (0%)	-----
Condoms	1	1 (100%)	1	1 (100%)	-----
Undecided	22	0 (0%)	45	1 (2.3%)	0.87
None	0	0 (0%)	5	5 (100%)	-----

TABLE 2: Planned versus actual contraception by method among MARC and Resident Clinic (RC) patients.

with Hepatitis C.

Table 2 demonstrates planned contraception for each subject group by method and the number of those subjects who ended up actually receiving the method they planned. The most frequent planned contraceptives among the MARC group and RC group were BTL and Undecided. Twenty eight subjects in the MARC group (45.9%) and 90 subjects in the RC group (61.6%) actually received the contraceptive they had initially planned in their

prenatal record, p= 0.037. Only 13 of 23 (56.5%) MARC subjects and 20 of 30 (66.7%) RC subjects received a desired BTL. There were very few women in the MARC program planning an IUD or implant for postpartum contraception.

Table 3 compares the planned contraception for each subject group by method to the total number of subjects who received each method. The highest frequency method for both groups was no contraception (28 MARC subjects, 45.9% vs 46 RC



Method	MARC Planned Contraception (N=61)	MARC Actual Contraception N (% of total)	RC Planned Contraception (N=146)	RC Actual Contraception N(% of total)	P value
IUD	4	2 (3.3%)	25	22 (15.1%)	0.016
Implant	2	0 (0%)	4	8 (5.5%)	0.11
BTL	23	16 (26.2%)	30	20 (13.7%)	0.03
Vasectomy	0	0 (0%)	4	4 (2.7%)	0.32
DMPA	5	5 (8.2%)	11	13 (8.9%)	0.87
Pill	4	7 (11.4%)	19	21 (14.4%)	0.58
Ring	0	1 (1.6%)	1	4 (2.7%)	0.64
Patch	0	0 (0%)	1	2 (1.4%)	0.89
Condoms	1	1 (1.6%)	1	3 (2.1%)	0.84
Undecided	22	0 (0%)	45	2 (1.4%)	0.89
None	0	28 (45.9%)	5	46 (31.5%)	0.04

TABLE 3: Overall actual contraception by method among MARC and Resident clinic patients.

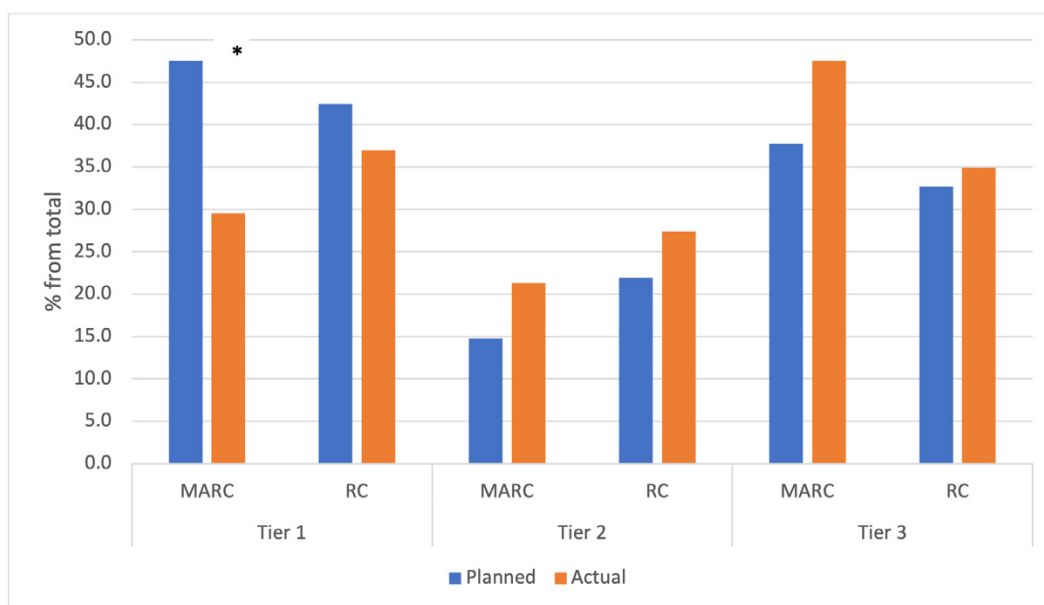


FIGURE 1. Comparison of planned versus actual contraception by efficacy tiers. RC is resident clinic, MARC maternal addiction recovery center. Tier 1 MARC 18.0% drop/Tier 1 RC 5.5% drop. Tier 2 MARC 6.6% increase /Tier 2 RC 5.5% increase. Tier 3 MARC 9.8% increase/Tier 3 3.3% increase.

*denotes statistical significance.

subjects, 31.5%, $p=0.04$). There were three additional women in the MARC group that ended up receiving a BTL that had not initially planned this method in their prenatal record. More women in the RC group received LARC options for contraception compared to those within the MARC group.

Groups were compared by subjects who received higher or lower efficacy methods. In the MARC subjects, 17 (27.8%) changed to a lower efficacy method from planned Tier 1 method to actual tier 2 or 3 method, while in the resident clinic this number

was 27 subjects (18.5%), $p=0.13$. There were only 9 (14.7%) MARC subjects and 26 (17.8%) resident clinic subjects that raised in contraceptive efficacy from planned Tier 2/3 to actual Tier 1, $p=0.59$. Of the 53 total subjects that wanted a tubal ligation, 33 (62.2%) received a tubal ligation and 4 (7.5%) received an IUD. The remaining 16 subjects received a lower tier efficacy method. The most common choice of contraception, when subjects lowered in efficacy, was to receive no contraceptive (86.4%). When choosing a higher efficacy, subjects most commonly (51.4%) went from originally wanting no



contraceptive to receiving pills/patch/ring/depo/condoms.

Figure 1 demonstrates the proportion of both groups desiring Tier 1, Tier 2 and Tier 3 methods, and the proportion receiving these methods by efficacy. The greatest change between groups is demonstrated with Tier 1 methods (IUD, implant, BTL and vasectomy), with a greater proportion of the MARC group not receiving one of these methods.

Overall, a total of 15 patients were pregnant within 1 year after birth; 4 (6.6%) were in the MARC group and 11 (7.5%) were in the resident clinic group, $p = 0.37$. None of the patients pregnant within a year were using Tier 1 contraceptive methods. 146 total patients (70.5%) followed up at the six-week postpartum visit, with 32 (52.5%) of these in the MARC group and 114 (78.1%) in the resident clinic group, $p < .0001$. Of those who did not show for their postpartum visit, only one subject was using a tier 1 method of contraception.

DISCUSSION

This study demonstrates that a large proportion of patients will change their minds regarding their desired contraception methods, and some may choose less effective forms of contraception. Nearly half of the MARC population (45.9%), regardless of planned contraception method, received no contraception postpartum. This may be attributable to shortcomings in counseling, or to the significant percentage loss to follow up among MARC patients. This finding is consistent with other studies showing low rates of contraceptive use among women in opioid treatment programs. One study demonstrated that among women not desiring pregnancy, only 55% were using any contraception.⁹ Another study demonstrated less contraceptive pill use (4% vs 25%) and IUD use (1% vs 6%) when comparing opioid addicted women to controls.¹⁰

In the current study, overall number of women choosing LARCs was low between both groups, yet the RC population chose LARC's significantly more frequently than the MARC population. It is unclear based on the scope of this study if this is due to a lack of counseling or other barriers. This finding is

consistent with other studies demonstrating low use of LARCs among opioid addicted patients from 5-13%.^{9,11}

Reasons for patient changes in contraceptive methods might include misinformation, mistrust in health care services, lack of appropriate counseling, or cost. Other barriers affect access from a systems level, such as access to BTL or LARC methods. In our study only 56.5% of MARC patients received a BTL when desired. A majority of the MARC population and a significant portion of the RC population were Medicaid patients. In West Virginia, Medicaid patients must be over 21 years old, be medically competent, and have signed a state BTL consent form 30 days in advance but not more than 180 days in advance of delivery if they want their sterilization procedure covered. There is an emergent delivery/abdominal surgery clause under which WV Medicaid will cover the procedure, however the time from consent to the time of delivery/surgery must be 72 hours. These stipulations may deter patients from pursuing sterilization as a means of contraception, or, in the event of a truly emergent delivery, prevent them from receiving a sterilization altogether. Operating room and provider availability are further barriers to obtaining a BTL for contraceptive purposes. Often there are multiple procedures scheduled in the labor and delivery operating rooms and those patients desiring BTL after a vaginal delivery frequently get "bumped" on the schedule to make room for more pressing operations. Given the findings of the study, it is important for hospitals and physicians to improve access to BTL.

At the time of this study patients who desired LARC were required to attend a postpartum visit to obtain their contraceptive implant or IUD. For women with limited resources this can be an additional barrier to receiving effective contraception. In 2016, the year immediately following the timeframe for data collection in this study, WV Medicaid began covering and reimbursing immediate postpartum (IPP) LARC provision. Future study should include the impact of this policy on uptake and compliance of LARCs among opioid addicted patients.

Several limitations exist in this study. As a retrospective chart review, the data is limited by accurate medical records. Among patients that did



not keep postpartum follow up it was impossible to determine if they pursued any form of contraception with another provider. Another limitation is using the resident clinic patients as a control group. While this group was chosen as the most likely demographically similar group to the MARC patients, there are some obvious differences. More patients in the MARC program had Medicaid insurance, and this study did not evaluate income or educational attainment. However, comparing the MARC group to any control group helps to delineate any disparities specific to these patients.

The results of this study show that continued efforts must be made to appropriately educate and counsel the obstetric population of West Virginia regarding contraception. Special efforts must also be made to ensure that the ever-growing, high-risk population of opioid users are adequately counseled on their options for contraception. Obstetric providers must continue to educate patients on the safety, efficacy, and ease of use related to LARC methods as these methods become more easily available immediately postpartum. Providers can frontload their counseling during prenatal visits and steer the discussion toward high efficacy, low effort contraceptive methods. Future study should include effective messaging about contraception specific to opioid addicted patients, and the impact of formal contraception curriculums developed within treatment programs.

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