



HHS Public Access

Author manuscript

Clin Obstet Gynecol. Author manuscript; available in PMC 2016 June 01.

Published in final edited form as:

Clin Obstet Gynecol. 2015 June ; 58(2): 370–379. doi:10.1097/GRF.0000000000000098.

Caring for opioid dependent pregnant women: prenatal and postpartum care considerations

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Abstract

Pregnancy is an opportune time to identify opioid dependence, facilitate conversion to opioid maintenance treatment, and coordinate care with specialists in addiction medicine, behavioral health and social services. Comprehensive prenatal care for opioid dependent women involves the evaluation and management of co-occurring psychiatric disorders, polysubstance use, infectious diseases, social stressors and counseling regarding the importance of breastfeeding, contraception and neonatal abstinence syndrome. While the complex psychiatric, social and environmental factors faced by this population pose significant challenges to obstetric care providers, the development of strong patient-provider relationships can facilitate the ability to deliver efficient and effective health care during pregnancy.

Keywords

Opioid use; substance use; prenatal care; postpartum care; pregnancy

INTRODUCTION

Opioid abuse has increased dramatically over the last decade and accounts for a significant portion of drugs misused during pregnancy. From 2000 through 2009, the incidence of maternal opioid use during pregnancy increased from 1.19 to 5.77 per 1,000 hospital live births per year.¹ Correspondingly, the rate of neonatal abstinence syndrome (NAS) or neonatal drug withdrawal after birth has also increased substantially from 1.20 to 3.39 per 1,000 hospital live births per year.¹ The management and treatment of substance use disorders and specifically, opioid dependence during pregnancy is a challenging and complex process that requires involvement and investment from a multidisciplinary team of health care providers. Obstetric care providers have a unique opportunity to make a

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substantive impact on the lives of opioid dependent (OD) women and their children by providing a medical home for patients during pregnancy, facilitating care coordination among providers and delivering comprehensive prenatal and postpartum care.

MATERNAL AND NEONATAL EFFECTS OF OPIOID DEPENDENCE

Approximately 30% of pregnancies complicated by opioid dependence end in preterm birth (<37 weeks), a rate that is 3 times the national average.^{2, 3} Neonates born to OD women are more likely to be low birth weight (<2500 grams), admitted to the neonatal intensive care unit and require prolonged treatment for NAS.^{4, 5} NAS, a drug withdrawal syndrome after birth, affects 45-94% of infants born to OD mothers, results in significant neonatal morbidity and requires the intensive use of health care resources.⁵⁻⁸ Average hospital costs for infants with NAS are \$53,400 in comparison to \$9,500 for all other hospital births.¹

Over 35% of OD pregnant women screen positive for additional drugs such as marijuana, cocaine and benzodiazepines on urine drug screens and tobacco smoking rates range from 77-95%.⁹⁻¹² OD pregnant women are also at increased risk of having a coexisting psychiatric diagnosis such as depression, anxiety, bipolar affective disorder, personality disorders and posttraumatic stress disorder.¹³⁻¹⁵ OD women are frequently raised in a family environment complicated by substance abuse, are often drawn into substance use by partners (i.e. contagion) and have a history of victimization related to physical and sexual violence. OD women are also more likely to use drugs with multiple partners and exchange sex for drugs than men.¹⁶⁻¹⁸ Because of the high rate of intravenous opioid use and sex-related risk patterns, 50-62% of OD women are Hepatitis C Virus (HCV) positive and 1-4% are HIV positive.^{19, 20}

ANTEPARTUM CARE AND MANAGEMENT

Pregnancy is a unique opportunity to identify opioid dependence, facilitate conversion to opioid maintenance treatment, and coordinate care among specialists in addiction medicine, behavioral health and social services.²¹ OD pregnant women should receive all elements of routine pregnancy care, but may benefit from more frequent prenatal care visits to address complex psychosocial needs as well as facilitate referrals to social services and case management to address long term needs after delivery. Increased eligibility for Medicaid during pregnancy and the postpartum period also facilitates access to opioid replacement therapy, prenatal care and other necessary health care services for many otherwise uninsured high-risk women. Although, there are no clear guidelines for antenatal testing, consideration can be given to monthly ultrasound assessments of fetal growth from 24 weeks gestation due to an increase in the risk of low birth weight (LBW) infants in women on methadone maintenance therapy.²² Weekly antenatal testing initiated at 32 weeks may also be considered due an increased risk of fetal demise.^{22, 23} In the absence of other medical indications, more intensive medical care or a referral to a maternal-fetal medicine specialist is not necessary.²¹ outlines specific screening, evaluation and management factors to consider when caring for OD women during pregnancy and the postpartum period.

Screening for substance use

The American College of Obstetricians and Gynecologists recommends that all women be screened for the use of drugs and/or alcohol during pregnancy.²⁴ Screening should consist of verbal or written questioning about past and current alcohol, tobacco, illegal drug use and the nonmedical use of prescription drugs. Urinary toxicology screening should not replace provider questioning as sporadic use may result in false negative results.²¹ Moreover, standard urine toxicology screening typically identifies only morphine, codeine, and heroin derivatives, while semisynthetic or synthetic opioids such as oxycodone, buprenorphine and fentanyl may require additional testing for identification.²¹ Prior to performing drug screening, patient consent should be obtained and reasons for testing should be discussed in detail. Screening without consent or based on clinician suspicion can adversely impact patient-provider trust and discourage women from continuing to seek prenatal care and other beneficial health care services.²⁵

Several substance use screening tools can be used for pregnant women and are intended to facilitate discussion on past and current drug and alcohol use (Table 1). Once substance use is identified, a thorough substance use history should be taken including type of substances used, route (inhalation, ingestion, or injection), frequency, and length of use as well as the substance use history of close family members and partners.²⁵ The risks of substance use on the mother (i.e. HIV, HCV) and the baby (i.e. LBW, NAS) should also be discussed with the patient and referrals to addiction medicine and/or drug and alcohol counseling should be initiated. Due to comorbid health concerns, patients should also be screened for additional psychosocial risk factors such as mental health disorders and intimate partner violence (Table 1).

Opioid Maintenance Therapy

For patients who meet criteria for opioid dependence, treatment with opioid maintenance therapy is recommended. Opioid dependence is typically diagnosed after patient's manifest signs and symptoms of physical withdrawal (i.e. tachycardia, diarrhea, nausea and vomiting) after drug cessation, rapid dose reduction, decreasing serum drug levels and/or administration of an opioid antagonist.²⁶ Medically monitored conversion from illicit opioid use to opioid maintenance therapy decreases maternal and neonatal morbidity by providing a stable opioid dosing regimen, minimizing withdrawal, reducing risk-taking behavior, decreasing the spread of HCV and HIV and is associated with the improved utilization of health care services such as prenatal care.²³ While closely monitored inpatient opioid detoxification is possible, opioid withdrawal has been associated with an increased risk of spontaneous abortion, preterm labor, fetal distress, continued illicit drug use, and is not routinely recommended in pregnancy.^{27, 28} In an evaluation of 95 women who elected inpatient opioid detoxification during pregnancy, 42 (44%) relapsed and used illicit drugs prior to delivery.²⁷

Methadone, a full mu opioid agonist, is the recommended, standard treatment for OD pregnant women.²⁹ Methadone is available through federally licensed treatment facilities that dispense daily doses of methadone to patients in a closely monitored treatment setting. In 2002, the Food and Drug Administration approved buprenorphine (a partial mu opioid

agonist) for the treatment of opioid addiction and randomized controlled trials have established its safety in pregnancy.³⁰ An alternative, effective, evidence-based treatment option, buprenorphine has important maternal benefits such as office-based practice availability and is associated with superior neonatal outcomes.³⁰⁻³² In a double-blind, randomized controlled trial, infants born to pregnant women treated with buprenorphine had a significantly shorter duration of treatment for NAS, required significantly lower doses of morphine when treated for NAS symptoms and had a significantly shorter hospital stay than infants born to pregnant women treated with methadone.³⁰ Although effective for many OD women, buprenorphine is a partial opioid agonist and may have decreased ability to alleviate cravings and withdrawal for women with severe addiction.^{30, 33, 34}

Tobacco use

The majority of OD pregnant women smoke during pregnancy with prevalence of 77-95%.⁹⁻¹² Often confounding the impact of opioid use on adverse pregnancy outcomes, tobacco use during pregnancy is also associated with an increased risk of preterm birth, intrauterine growth restriction and fetal death and smoking cessation counseling should also be provided during each prenatal care visit.³⁵⁻³⁷ The American College of Obstetricians and Gynecologists recommends the use of the “5 A's” which consists of: 1) *Ask* pregnant patients about smoking at every obstetric visit; 2) *Advise* patients to stop smoking using clear, strong and personalized language; 3) *Assess* patients' willingness to stop smoking and motivations to quit; 4) *Assist* patients to stop smoking by providing strategies and resources; and 5) *Arrange* specific follow-up to track patients' progress.³⁸ Smoking cessation counseling has been significantly associated with both reduction and cessation of tobacco use during pregnancy.³⁹

Psychiatric Disorders

In addition to comprehensive drug screening, all OD women should also be screened for cooccurring mental health disorders (Table 1). In a recent evaluation, 64.6% of OD pregnant women endorsed symptoms related to a co-occurring psychiatric disorder such as anxiety (40.0%), depression (32%) and 12.6% of women reported suicidal thoughts in the past 30 days.⁴⁰ Women who reported psychiatric symptoms had greater addiction severity, and were more likely to have deficits in family/social functioning, psychological functioning, employment status and medical impairment.⁴⁰ If a psychiatric disorder is identified, patients should be counseled on the risks and benefits of various treatment options during pregnancy including pharmacotherapy, counseling and behavioral interventions. Depending on provider experience, psychiatry or behavioral health specialists should be consulted to initiate a treatment program.²⁵

The use of pharmacologic treatments for psychiatric disorders should not be withheld because of pregnancy. In particular, selective serotonin reuptake inhibitors (SSRI's) can be safely used in pregnancy for moderate to severe depression and are compatible with breastfeeding. In large cohort studies, SSRI's have not been associated with an elevated risk of teratogenicity with the exception of paroxetine, which has been associated with a small absolute increase in congenital heart defects.^{41, 42} However, infants exposed to SSRI's in utero can exhibit an SSRI-induced withdrawal syndrome after birth that may mimic the

signs and symptoms of NAS.⁴³ Therefore, a comprehensive discussion of the maternal and neonatal risks and benefits of the use of psychiatric pharmacotherapy in pregnancy should occur with each patient prior to initiation.⁴⁴

Infectious diseases

All OD women should receive screening for infectious diseases including HIV, HCV and other sexually transmitted infections (i.e. gonorrhea, chlamydia) during the initial prenatal care visit and repeated in the third trimester due to high rates of prostitution and the exchange of sex for drugs.^{45, 46} HCV is especially prevalent due to high rates of intravenous opioid use and education and counseling regarding HCV risk factors and transmission should occur during prenatal care visits.^{19, 45, 47, 48} Prenatal surveillance of HCV should include HCV genotype identification, monitoring of liver transaminases to evaluate for evidence of liver inflammation and/or injury and referral to hepatology to discuss disease status and treatment options after delivery.

Social stressors

Support from social workers and social service organizations are critical to providing comprehensive clinical care to patients with substance abuse. OD pregnant women are at high risk for sexual violence, homelessness, prostitution and incarceration and many women do not have safe, drug-free living environments for themselves or their children.²⁴ Screening for a safe and supportive living environment should be performed privately (family members and partners outside of the room) during the initial prenatal care visit and throughout pregnancy.²⁵ Women who do not have a drug free living environment should be referred to social services to assist with providing safe housing and/or case management services.⁴⁹

Patient-provider rapport

Developing and fostering a sense of trust, confidentiality and a strong patient and provider rapport is critical to improving outcomes for OD women and their children.²¹ Fears related to stigmatization and judgment from family, friends and health care providers as well as involvement from child protective services prevent many women from seeking early or any prenatal care.²⁵ Open and honest communication about the importance of frequent and regular health care during pregnancy and the development of a trusting patient-provider relationship facilitates effective communication, decreases patient anxiety and results in more productive clinical interactions.²¹

INTRAPARTUM CARE AND MANAGEMENT

OD pregnant women should receive standard obstetrical management and opioid maintenance therapy with either methadone or buprenorphine should be continued during labor and delivery. Epidural or spinal anesthesia should be offered when necessary for intrapartum pain management as opioid maintenance therapy does not provide adequate pain relief.²⁴ The use of fetal scalp electrodes to monitor fetal heart rate during labor should be avoided in patients with HCV and HIV due to an increased risk of neonatal transmission.⁵⁰ Mixed agonist-antagonists (e.g. nalbuphine, butorphanol, pentazocine) should be avoided in

all opioid dependent patients and buprenorphine should be avoided in patients on methadone maintenance therapy as these agents may precipitate acute withdrawal.²⁴ Finally, pediatric care providers should be present at the delivery of all opioid-exposed infants.

POSTPARTUM CARE AND MANAGEMENT

OD patients may require more analgesia in the immediate postpartum period due to inadequate pain tolerance related to chronic opioid use. While oral and injectable nonsteroidal anti-inflammatory agents are often adequate after vaginal birth, additional doses of oral or intravenous short-acting opioids may be necessary for patients after cesarean section in addition to their methadone or buprenorphine maintenance therapy. Compared to matched controls, an evaluation of OD women found a 70% increase in opiate analgesic requirements following cesarean delivery for women on methadone maintenance therapy and a 47% increase for women on buprenorphine maintenance therapy.^{51, 52} Postpartum patients should also be monitored for signs of oversedation (i.e. respiratory depression, lethargy, aspiration) as maintenance therapy doses required during pregnancy may exceed the patients' therapeutic requirements in the postpartum period.⁵³

Neonatal abstinence syndrome (NAS)

All OD pregnant women should be counseled that infants chronically exposed to opioids in utero (licit or prescribed opioids, illicit opioids or opioid maintenance therapy) are at risk for NAS. Characterized by hyperactivity of the central and autonomic nervous systems, NAS symptoms may present anytime in the first 2 weeks of life, but often occur within the first 3-4 days after birth.^{54, 55} Symptoms such as excessive high-pitched cry, reduced quality and length of sleep, increased muscle tone and tremors are often accompanied by autonomic dysregulation (e.g. sweating, yawning, and increased respiration) and gastrointestinal manifestations (e.g. excessive sucking, poor feeding, vomiting and diarrhea).⁵⁵ Infants of OD women require close observation for the development of NAS for 3 to 4 days for short acting opioids and 5 to 7 days for long acting opioids and withdrawal is commonly determined by assessing infants every few hours with a tool such as the Finnegan scale.⁵⁶ Pharmacological intervention for withdrawal is required for 50-70% of infants, most commonly with morphine or methadone.⁵⁷ Once the infant is on a stable dose of the selected opioid medication, the dose is slowly reduced over several days to weeks in a closely monitored medical withdrawal process.⁵⁵ Once infants are discharged, close follow-up with pediatric care providers familiar with caring for opioid-exposed children is recommended and all infants with opioid exposure should be referred to early intervention services to monitor infant development.

Breastfeeding

Breastfeeding is particularly important for chronically opioid-exposed newborns as it is the only intervention demonstrated to reduce NAS severity. Compared to formula fed infants, infants fed breastmilk are less likely to need pharmacologic treatment for NAS and if treatment is required, require lower doses of morphine and thus have shorter hospital lengths of stay.⁵⁸⁻⁶¹ Breastfeeding is also associated with stress reduction, increased maternal confidence and enhanced mother-infant bonding.⁶² Due to significantly improved neonatal

outcomes, OD women adherent to methadone or buprenorphine maintenance treatment should be encouraged to breastfeed and education regarding the beneficial impact of breastfeeding on NAS should be incorporated into prenatal care counseling.⁶³

In Guidelines for Breastfeeding and the Drug-Dependent Woman, The Academy of Breastfeeding Medicine outlines clear criteria for which OD women should receive breastfeeding support.⁶⁴ The American Academy of Pediatrics recommends breastfeeding for women taking methadone regardless of maternal dose as very little methadone is present in breastmilk (1-3% of the maternal weight-adjusted dose).⁶³ Similarly, breastfeeding is recommended for women taking buprenorphine as low oral bioavailability results in minimal infant buprenorphine exposure through breastmilk (< 1% of the maternal weight-adjusted dose).⁶⁵ Clinicians should also be aware that breastfeeding is not contraindicated for women with HCV and caution should only be exercised if a mother develops an open lesion on her nipples or breast.⁶³ Breastfeeding, however, should be avoided in women who are actively using heroin and other illicit drugs as breastfeeding may cause tremors, restlessness, vomiting, respiratory suppression, lethargy and poor feeding in infants.

Contraception

OD women are at significant risk for unplanned pregnancy and postpartum contraception intention should be discussed throughout the prenatal care period. In an evaluation of 946 OD pregnant women, 89% of pregnancies were unintended compared to 31-47% of the general population.⁶⁶ Long acting reversible contraception (LARC) such as intrauterine devices (IUDs) and subdermal implants should be encouraged over other methods due to significantly greater continuation rates when used for postpartum contraception.⁶⁷ To further reduce the risk of unplanned pregnancy, immediate post-placental IUD placement or insertion of subdermal implants prior to patient discharge after delivery should also be considered to reduce barriers to LARC use such as poor compliance with the postpartum visit.⁶⁸

CONCLUSIONS

Pregnancy is a unique opportunity to change the lives of women with substance use disorders and substantive improvement in maternal and neonatal outcomes requires engagement from a multidisciplinary team of invested health care providers. While the complex psychiatric, social and environmental factors faced by this population pose significant challenges to obstetric care providers, the development of a trusting, empathetic patient and provider relationship can greatly facilitate the ability to effectively deliver necessary prenatal and postpartum care services. Patient and provider investment in optimizing maternal and neonatal health during pregnancy has the potential to reduce the morbidity of substance abuse and improve the future of OD women and their children.

Acknowledgements

None of the authors have a conflict of interest. None of the authors have any financial or material support to disclose. Research reported in this publication was supported by the National Center for Advancing Translational Sciences of the National Institutes of Health under Award Number KL2TR000146 (Dr. Krans). The content is

solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.

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Table 1

Screening instruments for substance use, mental health disorders and intimate partner violence

Instrument	Population	Administration Time (minutes)
Alcohol and Drug Use		
4P's Plus (Parents, Partners, Past and Pregnancy)	Pregnant women	3 to 5
CRAFFT (Car, Relax, Alone, Forget, Family, Trouble)	Adolescents/young adults	<5
ASSIST (Alcohol, Smoking, and Substance Involvement Screening Test)	General	10
Alcohol Use Only		
T-ACE (Tolerance, Anger/Annoyance, Cut Down, Eye-Opener)	Pregnant women	<1
TWEAK (Tolerance, Worry, Eye-Opener, Amnesia, Cut-Down)	Pregnant women	2
AUDIT (Alcohol Use Disorder Identification Test)	General	<2
Drug Use Only		
DAST-A (Drug Abuse Screening Instrument)	General	5
Depression/Mental Health		
EPDS (Edinburgh Postnatal Depression Scale)	Postpartum women	<5
PDSS (Postpartum Depression Screening Scale)	Postpartum women	5-10
CES-D (Center for Epidemiological Studies)	General	5-10
PHQ-9 (Patient Health Questionnaire)	General	5-10
Intimate Partner Violence		
AAS (Abuse Assessment Screen)	Pregnant women	5-10
WEB (Women's Experience with Battering)	Women with history of abuse	5-10