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Massachusetts Behavioral Health Partnership
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Women, Pregnancy, and Substance Use

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Gender and Substance Use Disorders: Epidemiology

- Rates of substance abuse or dependence have consistently been higher for men than for women.
- In 2013, the rates of substance use disorders in those aged 12 and older were 10.8 percent for men and 5.8 percent for women.
- In the 12-17 age group, prevalence of substance use disorders was the same for boys and girls. NSDUH 2013

Pregnancy and Illicit Drug Use

- Data averaged between 2012 and 2013 indicated that 5.4 percent of pregnant women aged 15-44 were current illicit drug users (v. 11.4 percent who were not pregnant).
- Current illicit drug use was lowest in pregnant women in their 3rd trimester (2.4 percent) versus their 1st (9.0 percent) and 2nd (4.8 percent) trimesters.
- Age had an inverse relationship with prevalence of use: 14.6 percent in ages 15-17; 8.6 percent in ages 18-25; and 3.2 percent in ages 26-44.
- There were no statistical differences between these rates and those demonstrated in 2010-2011 data. NSDUH 2013

Psychosocial Issues in Prenatal Substance Use

- High rates of anxiety, depression, and low self esteem (Hagan et al 1994)
- High rates of past and ongoing physical abuse and sexual assault
- One study of women entering treatment found that 83 percent came from households where parents used drugs, 67 percent had been sexually assaulted, and 60 percent had been physically assaulted.

Trauma and Drug Use Disorders in Women

- History of trauma is a risk factor for drug use disorders
- Lifetime prevalence of drug use disorders is 4 times higher in women with a history of sexual assault and 5.7 times higher in women with a history of childhood abuse.
- Dose response relationship between severity of childhood sexual trauma and prevalence of drug use disorders; women who reported attempted intercourse at highest risk

Stigma, Drug Use, and the Criminalization of Pregnancy

- Women are disrespected and degraded within the drug using community (Murphy and Rosenbaum 1999)
- Late 1980s fetal rights movement joins War on Drugs and focuses on emerging “crack baby” scientific literature (questioned by 1991)
- Women could be arrested, prosecuted, and incarcerated for “delivering drugs to a minor”

Criminalization of Pregnancy (1980s)

- Punitive laws in nearly half the states
- Women who tested positive for drugs during delivery could immediately lose custody of their infants.
- Class and racial bias: all women prosecuted were poor and nonwhite (Chasnoff et al 1990; Moss and Crockett 1990)
- Consequent undermining of medical care due to mandatory reporting, racial profiling

War on Drugs and Criminalization of Pregnancy: Social Context (1980s)

- 1986-1991 => 828% increase in incarceration of AA women – double that of AA men
- Crack economy=> incarceration of 1 in 4 AA men
- 1992 – 90 percent of fathers in state prisons said their children were living with the children's mothers; only 25 percent of mothers in prison had similar support from their children's fathers
- Anti-needle exchange position of WOD=> increased HIV transmission by ignoring/suppressing efficacy data

Criminalization of Drug Use During Pregnancy: Legal Tools 2015

- Substance use during pregnancy is a crime (Alabama, South Carolina, Tennessee)
- Women prosecuted for substance use during pregnancy (with or without applicable law; only five states where this has not happened)
- Substance use during pregnancy=child abuse (14 states)
- Grounds for civil commitment (Minnesota, South Dakota, Wisconsin)
- Health care workers must report (13 states)
- Testing is required if use during pregnancy is suspected (four states) Propublica, 2015

Criminalization of Drug use During Pregnancy: Massachusetts 2015

- Not a crime
- Women have been prosecuted
- No specific law re: drug use= child abuse
- Not grounds for civil commitment
- Health care workers must report
- Drug testing if there is suspicion is not required by law Propublica, 2015

Alcohol Use and Pregnancy: Epidemiology

- Pregnant women aged 15-44 in 2012-2013: 9.4 percent reported current alcohol use, 2.3 percent reported binge drinking, and 0.4 percent reported heavy drinking
- Rates were much lower than for age matched non-pregnant women (55.4, 24.6 and 5.3 percent respectively)
- Current use was lower in 2nd (5.0 percent) and 3rd (4.4 percent) trimesters than in the 1st (19 percent) NSDUH, 2013

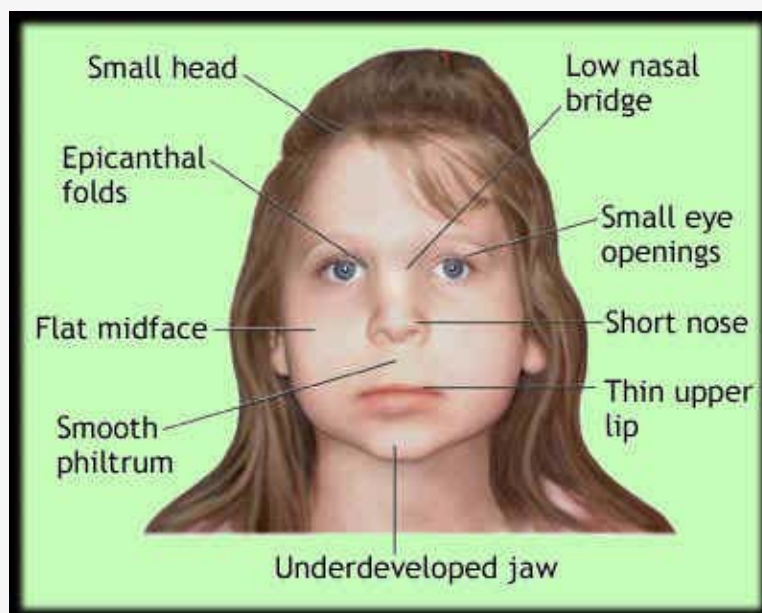
Alcohol and Pregnancy

- Alcohol during pregnancy is associated with spontaneous abortion, reduced birth weight, and behavior changes.
- Fetal alcohol syndrome: 1-3/1000 live births, the most common nonhereditary cause of birth defects
- Full blown syndrome occurs in 1/3 of alcoholic women drinking 10 drinks/day, more commonly occurs with binge drinking patterns

Fetal Alcohol Syndrome

- Characterized by: pre- and post-natal growth retardation, mental retardation and other CNS abnormalities, facial dysmorphism (short palpebral fissures, epicanthic folds, maxillary hypoplasia), microcephaly, altered palmar creases, cardiac abnormalities

Fetal Alcohol Syndrome: Diagram



Alcohol and Breast Feeding

- Infants born to women who drank and breast fed them during lactation had a significant difference in motor development at one year.
- There was a dose-response relationship between ethanol exposure in breast milk and decreased psychomotor development scores. (Little et al 1989)

Cigarettes and Pregnancy: Epidemiology

- Women aged 15-44 who were pregnant and endorsed past month cigarette use = 15.4 percent versus 24 percent of non-pregnant women in this age bracket
- True also for pregnant women aged 18-25: 21.0 percent versus 26.2 percent
- As women get older, the gap between pregnant and non-pregnant cigarette use widens.
- Women tend to quit during pregnancy by trimester: 1st = 19.9 percent, 2nd = 13.4 percent , 3rd= 12.8 percent

NSDUH, 2013

Tobacco and Pregnancy

- Increased rates of placenta previa and abruptio placentae, placental infarcts, and other placental vasoconstrictive effects
- Poor oxygen delivery to fetus due to increased carbon monoxide
- 150-200 gram birth weight reductions per pack of cigarettes smoked/day by mother
- Increased rates of SIDS, hospitalization, and death due to bronchiolitis, pneumonia, and other respiratory disorders

Marijuana and Pregnancy

- Dose related decreases in birth weights of infants
- Abnormal responses suggesting CNS effects: increased startle, poor self quieting, failure to habituate to light
(Jones and Chernoff 1984)
- THC crosses the placenta and accumulates in breast milk.

Cocaine and Pregnancy

- a/w early pregnancy loss, abruptio placentae, premature onset of labor, chronic fetal hypoxia, intrauterine growth retardation, increased incidence of stillbirths (Plessinger and Woods 1991)
- Cocaine-associated vasoconstriction in the newborn=> necrotizing enterocolitis, bowel perforation, arterial thrombosis, hypertension, and myocardial ischemia (Finnegan and Kimball 1997)

Cocaine and the Newborn

- Transient hypertonia and hyperreflexia, depressed interactive behavior, poor organizational response to stimuli
- Seizures and cerebrovascular accidents
- Excessive lability and irritability followed by hyporeactive state once cocaine clears
- Treat with short course of phenobarbital then careful, graduated stimulation
- Cocaine-using mother must not breast feed

Prescription Opioids and Pregnancy

- During 2008-2012, 39.4 percent of Medicaid-enrolled women between the ages of 15 and 44 (versus 27.7 percent of privately insured women in this age group)
CDC Morbidity and Mortality Weekly Report 1/23/2015
- In 2007, 1.1 million pregnant women were enrolled in Medicaid, and 23 percent (18.5 percent in 2000) of them filled an opioid prescription versus 14.3 percent of privately insured women.
- NB: Medicaid covers 45 percent of US births.
- Increasing incidence of back pain, abdominal pain, and joint pain during pregnancy may be related to obesity epidemic.
- Opioids are not thought to be as effective as physical therapy for the most common sources of pain during pregnancy; concerns re: societal expectations around pain relief

NY Times April 15, 2014 Pg. D1



Illicit Opioid Use and Pregnancy

- Adverse health effects for woman, fetus, and neonate
- Direct drug effects
- Withdrawal=> fetal distress, spontaneous abortion, death
- Exposure to infectious diseases through injection use or sex with partner with injection use or through sex work
- Exposure to violence, disruption of nutrition, and poor prenatal care
- Treatment engagement as early as possible in pregnancy is paramount and produces better outcomes

ASAM National Practice Guidelines, May, 2015



Methadone v. Buprenorphine for Treatment During Pregnancy

- Agonist therapies are treatments of choice and have minimal to no lasting effects on maternal/fetal/newborn health in contrast to mother using heroin or prescription opioids ASAM National Practice Guidelines; May, 2015
- Methadone is the only FDA-approved drug.
- Buprenorphine monoprodut (Subutex) has some advantages: infants had shorter hospital stays (10.7 days versus 17.5 days), shorter treatment for NAS (4.1 versus 9.9 days), and lower cumulative morphine dose (1.1 versus 10.4mg). BUT: Mothers treated with buprenorphine had lower retention rates than methadone-treated mothers.
Jones et al NEJM 12/9/2010

Methadone v Buprenorphine During Pregnancy

- | | |
|--|---|
| ▪ Structure of clinic | ▪ Office-based |
| ▪ Need for and barrier to split dosing | ▪ No barrier/less need for split dosing |
| ▪ Prolonged QTc | ▪ No QTc prolongation |
| ▪ FDA approved | ▪ Off-label use |
| ▪ Drug-drug interactions especially HIV, ondansetron | ▪ Low risk of drug-drug interactions |
| ▪ Levels fluctuate during pregnancy and postpartum | ▪ Less need for dose changes, levels do not fluctuate as much |

Opioid Antagonists and Pregnancy

- If a woman becomes pregnant on naltrexone, it should be discontinued.
- If the risk of relapse remains high, agonist therapy should be started.
- Intranasal or IM naloxone – (83 percent field success rate) should be used only in emergency such as overdose ASAM National Practice Guidelines; May, 2015
- Intranasal form takes about 3 minutes to reverse OD; can repeat dose every 2-3 minutes until 911 arrives

Opioid Agonist Therapy and Pregnancy

- Reduces opiate and other drug use
- Reduced risk of HIV and other blood-borne pathogens
- 70 percent reduction in overdose deaths
- Improves nutritional status and overall health
- Improved participation in prenatal care and addiction treatment
- Decrease in maternal opioid fluctuations => decreased fetal stress
- Improved fetal growth and perinatal outcomes
- Decreased rates of fetal demise and preterm delivery

Tapering off MAT During Pregnancy

- 2nd trimester detoxification may be *physiologically* safe for fetus and mother
- However, withdrawal of MAT during pregnancy is associated with unacceptable maternal relapse rates: 70-98 percent Luty et al 20013, Maas et al 1990, Dashe et al 1998

Methadone Dosing and Pregnancy: NAS

- Previously, dose in pregnant women limited to 40mg to avoid NAS
- No relationship between methadone (or buprenorphine) dose and NAS
- 2 genetic variants OPRM1 and COMT a/w shorter length of stay and less need for NAS treatment
- Breastfeeding also decreased length of stay and need for NAS treatment Wachman et al JAMA 2013
- NB: Breastfeeding contraindicated with HIV, recent heavy marijuana use, other illicit drug use, Hep B&C (when nipples are cracked or bleeding from feeding)

Methadone Dosing and Pregnancy

- Pregnant women often need higher doses in 2nd and 3rd trimesters or split doses due to greater volume of distribution, renal blood flow, and CYP 3A4 enzyme induction
- Maintain at trough level >0.24mg/L to avoid withdrawal
- Pregnant women often require 2nd and 3rd trimester dose increases to get up to 80-120mg
- Peak/Trough>2 indicates rapid metabolism and should encourage increased dose and/or split dosing

Drozdzick et al AJOG 2002

Split Dosing During Pregnancy

- Indicated when patient is in withdrawal at trough and sedated at peak, indicative of rapid metabolism
- Results in less illicit drug use
- Less fetal stress
- Twice daily visits may be a barrier to program adherence
- May require state medical waiver

MAT and Pain Management During Delivery

- Avoid partial agonists (buprenorphine) and agonist-antagonist drugs (butorphanol, nalorphine, pentazocine) for pain management, especially if patient is on methadone. Use only full agonists for pain (or NSAIDs if pain is not severe).
- Patient may need more bupivacaine for epidural anesthesia
- Continue unchanged MAT through labor
from training provided by Jacqueline Starer, M.D.

Postpartum Methadone Dosing

- It takes 12 weeks to return to pre-pregnancy cardiovascular function
- 6 weeks for CYP 450 3A4 to return to pre-pregnancy metabolic rate
- Do not abruptly reduce dose post partum as you may precipitate withdrawal, relapse
- Titrate dose over 6-12 weeks using sedation as a guide to decreases

https://www.dropbox.com/sh/r9a4blfh47r4wt/AAD95WVjC50PKrUSE9pvzYPIa/encl.0-1-BSASPresentation_ACOG_March16.pdf?dl=0

[\(link to presentation provided by Jacquelyn Starer, M.D.\)](#)

Diagnosis of NAS

- Careful drug history important because neonatal abstinence syndromes may have overlapping symptoms
- Drugs which are a/w NAS include opiates, alcohol, barbiturates, and benzodiazepines
- Signs of abstinence may mimic sepsis, meningitis, hypoglycemia, adrenal insufficiency, and cardiopulmonary disease

Neonatal Abstinence Syndrome: Opiates

- CNS: irritability, high pitched cry, tremors, hyperreflexia and hypertonia, poor sucking and swallowing, seizures in 5 percent
- GI: vomiting and diarrhea, weight loss in first few weeks or suboptimal weight gain
- Respiratory: tachypnea, hyperpnea, respiratory alkalosis, cyanosis, apnea
- Autonomic nervous system: sweating, sneezing, tearing and increased temperature

Treatment of Neonatal Abstinence Syndrome

- Prophylaxis not indicated because NAS happens in only 60-80 percent of drug exposed infants
- Morphine is most commonly used: decreases incidence of neonatal seizures, decreases agitation, eliminates diarrhea, improves feeding
- Morphine has a short half life and must be given every 3-4 hours; but short half-life makes it easier to titrate
- If neonate does not respond to maximal morphine doses, strongly consider sedative hypnotic withdrawal

Kocherlakota, Pediatrics Vol 134 No 2 8/2014

Postpartum Treatment and Opioid Use

- Vulnerable time for relapse due to sleep deprivation, post-op or post-delivery pain, withdrawing newborn and care of newborn, financial stressors, fear of child protective agencies
- Important to offer increased support, counseling, drug monitoring

Women and Substance Use: Importance of Integrated Care

- Engagement in care paramount – nonjudgmental destigmatizing environment, motivational interviewing approach
- Medical evaluation for complications of drug use
- Close links to psychiatric evaluation and treatment critical given prevalence of depression, suicidality, PTSD, and Axis II disorders
- Prenatal care should be partnered and tightly coordinated with addiction treatment
- Pregnant women are doubly stigmatized – but many decrease or stop their use – build upon existing motivation

Women and Substance Use: Psychosocial Elements of Integrated Care

- Obstetric and pediatric care should be well versed in special considerations a/w addiction and be able to provide the educational component within a motivational interviewing framework, as well as link patients to appropriate services when motivation is good
- Domestic violence services should be readily accessible
- Couples and family counseling, linkages to treatment for partner who is often also using drugs
- Child care

Resources

- Toolkit on Opioid Use in Pregnancy: Ronald Iverson, MD
Massachusetts Perinatal Quality Collaborative
- Treatment Services for Pregnant Women Bureau of
Substance Abuse Services www.mass.gov
- Toolkit on State Legislation: American Congress of
Obstetricians and Gynecologists

Thank you!

