Pregnancy and Newborns - Hayes

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00:01

This presentation is entitled Pregnancy and Newborns: Considerations from Science to Systems. I will now turn it over to Dr. Leslie Hayes to begin our presentation.

00:11

Hi, I'm Dr. Leslie Hayes and I'm going to be speaking about Pregnancy and Newborns: Considerations from Science to Systems. I have no financial disclosures.

00:22

Learning Objective: Describe the effects of substance use disorder on pregnancy and evidence based treatments for pregnant patients and newborns.

00:30

Pregnancy and substance use disorder: These are definitions of terms for providers not regularly doing obstetric care. I'm not going to go through them but they are available if you need to look them up.

00:44

And we'll start with a case study. 33 year old G4P3- She had been stable on buprenorphine-naloxone for four years. She presented to her buprenorphine provider for routine appointments. She was discovered to be pregnant. Her buprenorphine provider did not give her a script because of this. And if you are prescribing buprenorphine, please, please do not do this. Make sure you are at least providing enough of a script for them to get in with someone else if you're not comfortable providing this care. The patient relapsed to heroin. She presented to our clinic at 25 weeks gestation. Because

of transportation difficulties, we were unable to get her restarted on buprenorphine. She ended up delivering a premature infant at 31 weeks, she restarted buprenorphine postpartum, and both she and the baby have done well.

01:28

Next is a 22 year old G1P0 presented at nine weeks gestation. She was actively using heroin at that time. She desperately wanted to keep both the pregnancy and this child. She was started on buprenorphine maintenance. She did well. She has never had a relapse. Child had no signs of neonatal opioid withdrawal syndrome at birth and is currently 10 years old and doing quite well.

01:48

This is what we are all hoping for and it is very possible to achieve.

01:54

So, substance use and pregnancy is the leading preventable cause of mental, physical, and psychological impairments in children. Between 1998 to 2011, there was 127 increase- percent increase in opioid dependent pregnant women presenting for delivery. I am sure these numbers have gone up since, but I have not been able to find a study that shows this. Opioid-dependent pregnant women have an unintended pregnancy rate of 86%. So please, if you are treating persons who can get pregnant provide or refer for contraception. Make sure you address this.

02:28

The best way to screen a pregnant person for substance use is what we call the four Ps Plus. First P is parents, did either of their parents ever have a problem with alcohol or drugs? Partner? Does their partner have a problem with alcohol or drugs? Past? Have they ever had a problem with alcohol or drugs in the past? And past 30 days- in the past month have they drunk any alcohol or used any substances? And obviously, a positive answer to any of these does not mean that they have a substance use disorder themselves. But it is a sign we want to ask more questions.

03:04

So first question, what are the medical implications of substance use disorder with pregnancy? And also, what is the significance of pregnancy for any substance use disorder?

03:16

And if you look at- this was a population based study. They did not do any treatment for these patients. They just called them up- it was the national study' said, "Hey, are you pregnant? Have you used illicit drugs in the last month?" And what they found was that for women between the ages of 15 to 25, 8% of them were using drugs if they were pregnant, 16% of them were using if they were not

pregnant. So almost half had quit on their own. Between 26 to 44, almost three fourths had quit- went from 7% down to 1.6%. This was true across all racial groups. However, the reason we don't recommend that patients with substance use disorder just get pregnant as a treatment is because of this next slide.

04:06

And what we find is that there is a substantial rate of relapse postpartum. It doesn't go back to baseline. But it goes back fairly significantly. About 90% of patients will relapse. For illicit drugs- goes from 10.6% to 4.3% during pregnancy but back up to 8.5% postpartum. For any alcohol use goes from 53% during- before pregnancy, 9.8% during pregnancy. 43% during the first year postpartum. Similar things can be seen for binge alcohol use heavy alcohol use and cigarette use.

04:45

There has been so much focus on opioid use disorder in pregnancy in the last few years, that we tend to forget that the drug with the most potential to cause birth defects is actually alcohol. So really, really important we screen for alcohol.

05:00

Fetal alcohol syndrome is the most significant effect of alcohol. And fetal alcohol syndrome is three different... requires three different criteria: you need to have a small baby, you need to have a small brain or abnormal brain, and you need to have facial abnormalities. For small babies, they need to have height or weight less than 10th percent. Again, they need to have structural brain problems or head circumference less than the 10th percent. And for the facial abnormalities, short palpebral fissures, thin vermilion border of the upper lip, smooth philtrum.

05:40

And I see a lot of babies where I'm concerned about this. And I still find this very hard to diagnose. So I think what's really important is that we want to identify patients who have been drinking during pregnancy, and get their babies in to be evaluated by someone who does this regularly. Because I find this, these facial features can be very subtle at times. So you really want an expert to be looking at them.

06:06

Tobacco and pregnancy: This is another one we tend to not think about as much if we have somebody who's actively using fentanyl or just in general compared to other substances, but this is really a very significant cause of harm. Neonates born to mothers who smoke weigh an average of 200 grams less than neonates born to mothers who don't smoke. In addition, about 20... 22% of sudden unexpected infant deaths, also called SUIDs, can be directly attributed to maternal smoking during pregnancy. This is a really significant cause of harm that we need to be talking with our patients about.

06:46

Cannabis and pregnancy: This one is really fairly complicated. When I first started doing this talk 10 years ago... At that time, we kind of thought cannabis didn't really cause any harm, but we're really not thinking that way anymore. We really think this is something we need to be paying attention to.

07:04

There's a lot of potential confounders. Many patients who are using cannabis are also using alcohol and tobacco. Income, age, and education can also affect the likelihood of using cannabis and then maybe co-occurring psychiatric conditions. It is very common for people with ADHD to be using cannabis. And if their children end up having ADHD when they grew up, is it because of the cannabis use or because the parent had ADHD? Cannabis use is also super common. About 2-5% of patients say that they use cannabis during pregnancy, and it is going up. In 2002 it's 2.37% in the NSDUH and in 2014, it was 3.85%.

07:53

The most common reasons that patients give to use cannabis in pregnancy are morning sickness or to manage anxiety or depression. However, use of cannabis for morning sickness can lead to cannabinoid hyperemesis syndrome. This is way, way worse the morning sickness and I've seen patients end up having to be hospitalized every week during the pregnancy with this, so we need to warn patients that this is a possibility.

08:17

And data is mixed on the effects of cannabis during pregnancy. Studies have given varied results on birth weight, birth defects and other outcomes. Partly because of the alcohol and tobacco, it's hard to sort out how much is due to which of them. But there does definitely seem to be a pattern of neurobehavioral effects on the fetus, hyperactivity and sleep problems in toddlers, ADHD in preteens, emotional dysregulation in adolescents. And interestingly, the emotional dysregulation in adolescents is where I usually have the best success getting patients to stop using cannabis. Nobody wants a teen who is emotionally dysregulated.

08:56

So what we need to tell our patients: pregnant patients complained about hearing mixed messages from health care providers, and they do state they want more research on the safety and the effects of cannabis with pregnancy. So even though we don't have definitive answers, we need to be talking to our patients about this. There is no recognized safe amount of marijuana with pregnancy. Marijuana has not been found to definitively be dangerous, but it is also most definitely not found to be safe. It is also likely much more dangerous if combined with tobacco and alcohol. There's very likely a risk of long term neurocognitive effects. It may help with morning sickness, but it can also lead to cannabinoid hyperemesis syndrome. This is way worse and there are much better treatments.

09:44

Stimulant use in pregnancy: methamphetamine and cocaine are associated with preterm delivery delivery before 37 weeks. They can also be associated with a low birth weight infant and they can also be associated with small for gestational age infants. An infant can be low birth weight either because they're born preterm, or because they did not grow well, while the mother was pregnant. Methamphetamine and cocaine both cause the blood vessels in the placenta to clamp down and as a result, the baby just is not getting enough nutrients.

10:19

Opioid use disorder: both use of opioids and withdrawal from opioids have effects on the baby during pregnancy. However, withdrawal effects are usually considered to be much more serious, especially in the short term. So the tendency is- somebody comes in using fentanyl, using oxycodone, we want to tell them "just stop." But don't do this unless we can get them on treatment. Because the withdrawal is going to cause what we call a hyperadrenergic state, where they have just very high levels of epinephrine and norepinephrine. This in turn causes constriction of the blood vessels in the placenta. This is exacerbated by cocaine and methamphetamine use which can also cause constriction. The constriction of the blood vessels in the placenta can cause preterm labor. It can also cause placental abruption, which can be fatal for both mother and baby. Even if it's not fatal, it's gonna cause significant effects on the baby, who's not going to get adequate nutrition. The biggest direct effect of opioid use is neonatal opioid withdrawal syndrome at birth, and we will talk more about that later in this talk.

11:28

Case study on social effects: 28 year old G5P4 had been on methadone maintenance. She disappeared from care at about 20 weeks. I found out later she had actually found a family member who had died from an overdose at that time, which unfortunately led to relapse. She returned at 38 weeks in labor. She told me she'd been at a methadone clinic in another community. Her urine was negative for methadone and positive for opiates. The baby went into horrible withdrawal at birth. Child Protective Services became involved, and they took custody of the child. The mother was arrested when she and her cousin, who was the foster mother, actually got into a physical fight on the OB floor. Just a reminder, before we go on that you are welcome to submit questions in the chat at any time.

12:15

So what are some of the psychosocial implications of substance use disorder with pregnancy?

12:21

Depression and domestic violence very commonly occur with pregnancy or... very commonly occur with substance use disorder. And especially it is very common that these three occur together during pregnancy. Both depression and substance use disorder cause very poor self-care. Patients are less likely to be getting prenatal care; they're less likely to stop smoking. They're just not going to take as

good care of themselves as with either one of them, and especially if they have both together. Domestic violence is actually the second leading cause of trauma related death in pregnancy, behind car accidents. So really important we talk to patients about this.

13:04

And as I mentioned before, even without treatment, pregnant persons are very likely to stop or decrease their drug and alcohol use during pregnancy as there's such a high motivation to change during this time. And if we can get patients into treatment, we can make a difference for them and their baby for the rest of their life. There's also a lot of guilt and shame for many patients. It's really important that we are kind and compassionate, because it's so easy to set off that shame during this time. There can also be legal implications around the custody of the baby and the older children. And we do need to think about that. And again, most substance use in pregnant patients have very poor self-care behavior. If they continue to use drugs, they're unlikely to take good care of themselves during the pregnancy.

13:50

There may be a history of childhood sexual abuse or physical abuse. This can have implications for parenting. It can also have substantial implications for labor. There's a very high incidence of post traumatic stress disorder in these patients. And most women who use drugs start using because their partners use drugs. If they are still with that partner, it can be very difficult for them to quit unless he quits as well.

14:15

Next case: 25 year old G2P1 presented at 26 weeks stating I'm addicted to fentanyl. She was scared that she would lose the baby to Child Protective Services or have medical complications. She wants to get into treatment

14:29

Is medication therapy an option for her? Which is better, buprenorphine or methadone. What about weaning off the fentanyl and using abstinence-based therapy? And does she need any special care for her pregnancy?

14:43

The first thing I really want to emphasize is prenatal care. We often get so focused on the substance use disorder that we don't remember that these patients also need prenatal care. But prenatal care is really important in general and it's especially important for patients who are using drugs. In the study in the Journal of Perinatology, it was found that pregnant people with illicit drug use and no prenatal care had the highest risk for prematurity, low birth weight and small for gestational age infants. As these patients got more prenatal care, the risk for prematurity, low birth weight and small for gestational age babies dropped. This was true even if they continued to use drugs and did not

decrease at all during their pregnancy. The things we do during prenatal care screening for infection, making sure that the baby's growing well, the counseling we do... these all really matter, and it's especially important for anyone with medical problems.

15:34

However, the problem is pregnant people will often delay or not get prenatal care because of stigma and fear of consequences, including the fear of being reported to Child Protective Services. So we need to make our offices a safe place for these patients.

15:49

Next, this is one of the things I really want you to remember- this is one of the most important points about taking care of these patients. Abstinence-based therapy is not recommended during pregnancy for anyone who is actively using opioids.

16:04

Medication for opioid use disorder is standard of care for pregnancy.

16:10

We can do medication for opioid use disorder with either methadone or buprenorphine. Methadone has been used much longer. Most providers prefer to start with buprenorphine if available. I'll talk a little bit about the risk of neonatal opioid withdrawal syndrome, which is one of the reasons. The other reason is that there are some patients who will do well with buprenorphine and not with methadone. There are some patients who will do well with methadone, but not with buprenorphine. If you start with buprenorphine, and it doesn't work, it's very easy to transfer them over to methadone. If you start with methadone, and it doesn't work, it's much, much more difficult to transfer them to buprenorphine.

16:47

There were two recent studies of naltrexone that showed no adverse fetal effects. When it was started during pregnancy, there was a lot less neonatal opioid withdrawal. So I am not recommending naltrexone yet. And especially it is difficult to start in general, because of the required period of abstinence. And you would need to monitor... there's more studies needed. So this may be something in five to 10 years, we will be using more.

17:13

Unfortunately, pregnant patients are not getting medication for opioid use disorder. 2020. I can't believe this was only three years ago, a study of obstetricians showed that only a third of obstetricians always recommend medication for opioid use disorder, a fourth never recommended. I

cannot imagine any other condition where we would tolerate having a fourth of obstetricians not recommend what is standard of care.

17:39

And then MOUD providers are far less likely to accept pregnant patients than non pregnant-patients. For methadone, 97% of methadone providers would accept a non-pregnant patient; only 91% would accept a pregnant patient. Buprenorphine, it's much much worse. 83% of patients- or providers would accept a non-pregnant patient; only 51% would accept a pregnant patient.

18:02

And the benefits are substantial. A recent study of 10,000 pregnant persons with OUD on Medicaid showed that patients on medication for opioid use disorder had decreased rate of overdose, decreased preterm birth and decreased low birth weight. And the longer that you were on medication for opioid use disorder, the better your outcome, and 41.8% of patients did not have any pharmacy fills for medication for opioid use disorder during the pregnancy. Again, I cannot imagine any other condition where we would tolerate such a large percentage of patients not getting standard of care.

18:41

Buprenorphine versus methadone: both are good during pregnancy, both make sure the mother and baby get taken care of. However, there is substantially less withdrawal if you use buprenorphine. 2010 New England Journal study showed that babies exposed to buprenorphine required 89% less morphine, had a 43% shorter hospital stay, and a shorter duration of treatment than babies exposed to methadone.

19:06

As far as starting buprenorphine in a pregnant person, the good news is this is almost for sure not going to be on the exam. The bad news is there's just really very little data and very little consensus recommendation on how to do it. Most clinicians that I know of are doing micro-dosing as an outpatient or rapid micro-dosing in an inpatient setting. If a patient comes in in active withdrawal, you can consider doing macrodosing. I would do it in a supervised environment if at all possible. But again, there's very little actual consensus recommendation on this.

19:43

And just one quick reminder on morning sickness- if a patient is on methadone, both ondansetron and methadone can cause QT prolongation. Use other treatments first. You can cause substantial cardiac arrhythmias if you put them on ondansetron and methadone.

19:59

Um, lifestyle changes first- small frequent meals, avoid fluids with the meals, eat something before getting out of bed. Popsicles. Ginger actually has very good evidence for morning sickness. And then paradoxine And doxylamine really can be quite effective.

20:18

What about medically monitored withdrawal?

20:22

There was a recent meta analysis of 15 studies that had close to 2000 patients. 1100 of these patients went- underwent opioid detoxification. They said basically, at best, the studies were fair, most of them were poor. There were no randomized controlled studies. Mostly they were done inpatient or residential setting. There were three studies in incarceration. And there were- the detoxification ranged from 9-100%. Relapse rate ranged from zero to 100%. There were two maternal deaths from postpartum overdose in one study.

20:55

The rates of fetal demise and birthweights were similar between the two groups. The rate of neonatal abstinence syndrome ranged from zero to 100%. We really don't know the effect of medically monitored withdrawal. There's just too much variation between these studies and not really any decent studies.

21:12

And I think this is the most important point- no study of medically monitored withdrawal has examined maternal outcomes postpartum. And given the substantial rate of relapse postpartum, I don't think we should be recommending this until we have actually looked at this.

21:28

So the previous patient has made it to term is about to go into labor. Do you need to do anything special to manage your labor? What can you expect for the baby? Can she breastfeed? And what can she expect postpartum?

21:43

When she goes into labor, the method of delivery should be based solely on obstetric considerations. You don't need to do a C section for these. There's no reason to do anything different. You don't necessarily need to even induce labor if the baby and the pregnancy are doing well. Epidural is the preferred method of pain relief.

22:02

And then postpartum- really high risk for relapse. Encourage them to continue with their recovery behaviors and MOUD. Often these patients are going to be so focused on the baby that they forget to take care of themselves, but it's really important we encourage them to continue to take care of themselves.

22:18

They may not have very good parenting skills. They may have multiple adverse childhood events that led to their substance use disorder. So consider home nursing and parenting classes. They may also have a fussier baby than average and they may need a lot of support.

22:34

Next, this is one of my very first patients: 34 year old G2P1 had been on buprenorphine-naloxone for heroin use disorder. She moved away, got pregnant, and weaned herself off the buprenorphine. She moved back, and she declined to restart the buprenorphine because, quote, "I am not going to ever go back to drugs" end-quote. She had a really healthy pregnancy, all negative urine drug screens, normal, spontaneous vaginal delivery of a healthy baby. And then she died of an overdose about one year postpartum.

23:02

I was devastated- thought it was just, you know, sort of an isolated event. But the more I read, this is very, very common. This is a huge problem postpartum. Studies from Maryland, Tennessee, Colorado, Utah, Ohio, and Massachusetts, have found that postpartum overdose is one of the top causes of maternal mortality, it causes anywhere from 15 to 33%, of deaths.

23:29

New Mexico actually did a really great study last year that I would encourage you to look at if you want more detail on this. But they found that 47% of maternal deaths were connected to maternal substance use in some way. 42% were actually connected to mental health conditions, and 19% of patients had history of intimate partner violence. So these are a very high risk group that we really need to be paying attention to.

23:56

Suicide is also a substantial contributor to postpartum mortality. And the risk factors for postpartum opioid overdose and postpartum suicide have significant overlap. So if we're worried about opioid overdose, we also need to be thinking about postpartum suicide. The most common risk factors are depression, intimate partner violence, and substance use disorder, which we already discussed, often

go together. So screen for depression postpartum. I use the Edin- Edinburgh Postpartum Depression Screen. You can use another tool if you feel more comfortable, or even just asking people "are you depressed? How is your mood? How are things going?" Really, really important.

24:36

And the increased mortality continues for a long time. Mothers in Ontario and England who had babies with neonatal abstinence syndrome had a mortality rate that was over 10 times as high as mothers who did not have an affected baby. Roughly one in 20 mothers died over the next decade. For women without a baby with neonatal abstinence syndrome, it was one in 200. Interestingly, the top cause of death was actually unintentional injuries, mostly car accidents. There were also high rates of murder and suicide, drug related deaths and unavoidable deaths. And ever since I read this study, I have been asking every patient I have with opioid use disorder, every time I see them, are they wearing their seatbelt when they get in the car. No evidence behind it, but it's quick thing you can do, and I have gotten about 10% of my patients to start wearing seatbelts.

25:26

We're going to shift now to neonatal opioid withdrawal syndrome.

25:30

And first thing I want to really stress: neonatal opioid withdrawal syndrome is physical withdrawal in a newborn who was dependent on drugs in utero. It does not mean that the baby is addicted to drugs. And I actually make everyone swear an oath at this point, when I give this talk. "Do you solemnly swear that you will never ever refer to a baby with neonatal opioid withdrawal syndrome as an addicted newborn?" And the correct response is "I do" and go ahead and put it in the chat.

25:59

So clinical definition of opioid withdrawal: The American Academy of Pediatrics came out with a standardized definition in 2020. And you need two things. The first is in utero exposure to opioids. They can have other psychotropic medications on board. You can either get this from the mom saying that, yes, she was using opioids during pregnancy or you can also do toxicology testing.

26:27

And then they need clinical science. Any two of the following signs qualify: excessive crying- these babies cry and are very easily irritable. Their sleep is quite fragmented, they may sleep less than two to three hours after feeding. Tremors both disturbed or undisturbed. They may have increased muscle tone or be very stiff. And GI dysfunction is very common in these babies. They may want to eat all the time- hyperphagia- that they also don't feed very well even though they want to eat all the time. They may not tolerate feeds and they may have looser, watery stools.

27:07

We are really moving towards non-pharmacological treatment of neonatal opioid withdrawal syndrome. Non-pharmacological treatment includes feeding them very small amounts but feeding them often, keeping them in quiet, dim light, swaddling or skin to skin, and prenatal education for the parents. Studies from both Dartmouth and Yale showed substantial improvements in the cost and length of stay for non-pharmacological treatment. Up until I believe, 2008, every baby born at Yale who had any opioids onboard, be it heroin or prescription pain pills or medication for opioid use disorder, went to the NICU at an hour of life and 98% of these babies required medication treatment. They started using non-pharmacological treatment in 2008. And they have decreased it to 10% with substantial improvements in cost, and babies going home much sooner.

28:00

Breastfeeding, all of the cool kids recommend breastfeeding for any patient with substance use disorder who's in a treatment program and have had negative drug screens for two months prior to delivery. This includes Academy of Breastfeeding Medicine, American Academy of Pediatrics, American College... College of OBGYN, Substance Abuse and Mental Health Services Administration and the American Society for Addiction Medicine. This includes women using buprenorphine or methadone. We really encourage these patients to breastfeed.

28:31

And then really important to think about Child Protective Services. Studies in Manitoba showed that losing custody of a child to Child Protective Services is associated with significantly worse maternal health outcomes than experiencing the death of a child. Risk of depression was almost twice as great for women who had lost a child to Child Protective Services. Risk of substance use was eight and a half times greater. And they did whatever statistical thing they needed to do to account for the fact that these patients may have had more substance use disorder or mental illness prior. This is really significant. We need to treat these patients kindly, and really help with their mental health.

29:14

Whether to call Child Protective Services: Know your state's laws. Child Welfare Information Gateway has a page. Guttmacher infants Institute also has information on state laws. And also know your local hospitals policies.

29:30

To call Child Protective Services or not: Discuss the involvement during pregnancy. We are often really afraid to do it for fear that the patients will get scared and not return, but I find patients actually it's at the top of their mind and they really like having information. Discuss what will trigger referral and what's likely to happen if they do get a referral. Also talk with them about what they should do if a referral is made. They need to be honest with Child Protective Services. They need to

have a plan for substance use disorder treatment, and they need to have a plan to make sure that the baby is safe. Having these three really will make a substantial difference in their involvement with Child Protective Services.

30:09

In summary, alcohol and tobacco are the most dangerous drugs for the fetus in pregnancy. Medication treatment is recommended for opioid use disorder in pregnancy. The postpartum period and after is a high risk time for relapse and death in women with substance use disorder, and use non-medical treatments first for neonatal opioid withdrawal syndrome and that is all