Thomas Hale, PhD, R.Ph

Medication Use During Pregnancy

SUMMARY KEYWORDS

Mom, drugs, baby, milk, infant, medications, microbiome, breast milk, mother, antidepressants, studies, breastfeeding, medicines, important, pregnancy, withdrawal, transfer, nursing, simply, human

00:00
Okay, good morning, everyone. I am Dr. Debby Hamilton from the neurological foundation help foundation. And today we're interviewing Dr. Thomas Hale, who is from Texas Tech University Health Science Center, and acting executive director of the infant risk Center. Welcome, Dr. Hale, thank you for joining us. And let me tell me a little more about your background and how you got into this field.

00:25
Good morning, Debby.

00:28
Well, began my career as a pharmacist many years ago and and then I returned to graduate school to get a PhD in pharmacology and toxicology. And then after that, I did a postdoctoral fellowship in missoura. And then after that, I came here to Texas Tech University about 34 years ago and the department Department of Pediatrics. After my Chairman asked me to get involved in the study of drugs and breastfeeding, I became really interested in the transmission of drugs anti human milk and, and how they work and how it transfers into breast milk. and subsequent to that I created a book that has become quite popular around the world that

describes the transmission of drugs, what ones you have to worry about in breastfeeding mothers, and also in pregnant moms as well. And so that's kind of how I got to where we are today. The infant row center is, is worldwide national call center. We get calls from everywhere in the world. It's always about about 80% of time, it's about drugs and breastfeeding about 20% of the time. It's about drugs in pregnancy. And so I've been collecting all this information from the literature for many years now. And so we decided to distribute it about about 10 years ago, we started the center and we are now using this massive database So I've built to answer mom's questions a call in about just about everything you can imagine.

02:07
Right? That's wonderful. Well tell us what's the name of your book? Because that sounds like an amazing reference for women who are pregnant and nursing.

02:16
Questions. Yeah, the book is called medications in mother's milk. And it, we started, I started about 1992. And it was very small, then now it's much, much larger, has lots of lots and lots of drugs in it and comes out every other year, over new additions, new drugs and new new information that we scan from the literature constantly to put into the book.

02:44
Okay, that sounds that's impressive, because you're right, there are a lot of medicines and well, first of all, why should women be concerned about different medicines during pregnancy in nursing?

02:56
Well, some medications can be quite hazardous. Fortunately, The medications that most pharmaceutical manufacturers use today, the vast majority have a reasonably safe for sure and breastfeeding and marginally safe in pregnancy as well. I think that it's just you have to know which ones mom's on. And therefore, it's always a good idea to have good information databases you can go back to because there are literally thousands and thousands of drugs now. And even myself, I can't keep up with all of them. There's so many. And so it's a good, it's good to have someone you can talk to a doctor, an obstetrician are a place like the infamous interview, you can call and ask these kinds of drug questions.

03:46
I think it's good for women to know that they do have and at the end, if you could provide that number for women that they really helpful, because I never I'm a pediatrician and I never knew about the number or when I was having kids Nursing. So that's a great resource for people. So

does nature have any design when a woman is pregnant or when they're nursing to protect the infant, from substances that they take or medicines they take?

04:13
Well, nature actually created a pretty wonderful protection and that's the human placenta. Okay? the placenta screens out some drugs, quite a few drugs. And it really protects the infant from a lot of exotic substances that mother may consume large molecular weight products simply don't get through the placenta very well. And so the placenta is quite quite good at doing it as protected the infant quite quite well. But certain drugs still get through there. And so it's always nice to know what those are. Fortunately, in the field of pharmacology, most pharmaceutical firms don't like to produce drugs or teratogenic can cause birth defects. Like those drugs. I don't. generally don't put them on the market. Simply because they're just too hazardous and fraught with all kinds of legal liability, we probably have 30 or 40 drugs on the market now that are all the way from horribly teratogenic to, to slightly or even questionable teratogenic. And so that's really fortunate that we don't have too many drugs we have to worry about. But there are some and Mom, mom really needs to know that. And she really needs to talk to her doctor about what the medications and she's taking, so that the doc can help them help her decide what she needs to change or what she needs to get off of, to protect the infant. And so that science is pretty well known by Obstetricians and and we're fortunate that they can advise moms, about which drugs that are probably safer to use and they can switch them to those drugs. And they do that all the time. So fortunately, that's the placentas that A great starting point, but the end point is your obstetrician or the physician that can advise moms about those medications.

06:08
Now are certain trimesters of pregnancy more dangerous. I always think of someone that don't know the pregnant too well into the first trimester.

06:17
That's a That's true. The first trimester is always the trauma that we worry most about, because that's degenerative stays when all the organ systems, many of the cellular systems, the brain is being developed early on the spine. And so it's a very creative part. And it's the part that is most sensitive to drugs, particularly the folate antagonists, like valproic acid, like two or three of the anticonvulsants that bind up or reduce the levels of folic acid. And so some of those drugs are just horribly teratogenic in the first trimester. And we need to be very, very cautious of moms that are taking those or are taken off of them very quickly. One very important fact. And I live in a region of Texas that there is a high infant mortality rate here and we don't exactly know why. But we have a good feeling that the number one reason so many infants have problems at birth and moms have problems at birth is the lack of healthcare. Many of these bombs come to the

hospital to deliver baby and that's the first doctor they've ever seen. at it. We think that is the number one most important cause of healthcare problems in newborn infants is that the moms not been taken care of she's hypertensive. She's convulsing, she's using various kinds of medications she shouldn't be taking. And, and it's a lack of good health care. And if there's one thing moms need to know, is the minute you think you're pregnant, go see a doctor, right then. It's very important, so that the doctor can moderate and look at those medications and also take care of mom's health care needs. It's terribly Important and living in an area where we have too many babies die, or have all kinds of complications. We all know that the lack of proper health care in the first trimester or second trimester is major. That's the major reason for all these problems. So that's a that's a point we all try to get across here in the healthcare community is that good prenatal care. And postnatal care is very, very important for the, for the infants live.

08:30
Well, I always think if you have a difficult pregnancy and complications in birth, that's not going to help a mom breastfeed her baby either.

08:39
Absolutely true. The baby's very, very sick is sometimes difficult, or if mom is sick and hypertensive and has all kinds of medications that you're trying they're using. We deal with those every single day where moms are, have extreme hypertension, or seizure disorders, and they call up and around four or five have different medications and want to breastfeed your baby. And those are sometimes real problems. And so we have mechanisms here at the infamous center where we can evaluate those. But also we can kind of counsel the moms and the doctors about what they should use and what they shouldn't, or little techniques like use half half formula or half of donor milk, and half mom's milk that will reduce the dose by 50%. For a while until you can least get the moms off those medications. And so it's very important to maintain breastfeeding because everybody knows today that breastfeeding is the most important benefit a mother can give a newborn infant dramatically reduces the risk of infection dramatically increases. Health and Health health care. infants are simply not as as sick and they grow better. And what we think that it does also is establishes the market microbiome and the gut bacteria colonization of the gut for perhaps a lifetime, we know at least 12 to 14 years, the microbiome is established by the human milk itself. So breastfeeding is incredibly important. The moms need to be sometimes need help and breastfeeding and to get off certain kinds of medications, so that they can breastfeed for instance, safely. Because drugs do pass into breast milk. It's kind of a function of how much of the drug and recently I've been getting calls about antihypertensives, which are dosed four times the normal dose. So those are a little bit scary at times. And so moms and their, their physicians and their health care professionals need may need some assistance on how they evaluate those medications. And that's what we do here every single day.

10:57
Okay, so in some way that actually sometimes medicines, like the placenta is protective. So nursing might be higher risk for some medicines.

11:07
Yeah, that's certainly true. That's absolutely true. But fortunately, the breast milk compartment is pretty tight has mechanisms that it safeguards the baby as well. And some of the mechanisms are that large molecular weight drugs simply don't get into milk. Drugs, like toxins like botulism toxin and things like that. And large molecular weight. drugs like heparin simply don't get into breast milk. They're excluded. There's a size exclusion phenomenon in the the the breast itself that simply keeps the drugs from getting into milk. But most small drugs, those are two and three and 500 daltons can enter milk to some degree. But fortunately, if you look at the vast majority of medications, intermodal probably less than a 10th of the moms dose. We'll get to the baby. So nature there was quite smart and that it could exclude the vast amount that the mother may see, or transfer into her milk compartment. And it does so quite efficiently. So breastfeeding is still safe with lots and lots of medications. But it's unsafe for certain kinds of medications. And we just need to know what those are. Right?

12:24
I said, I'm a large proponent of breastfeeding too. And but you some women do need support and you don't get some of the support during pregnancy to prepare for that. Yeah. Or knowing your sources. That's interesting about the mic. I know about a microphone, but you said for 12 to 14 years.

12:39
Yes, we think so. Why is it that a child that has been breastfed children has a lighter body weight at 12 years and 14 years of age? Why are they lighter and body weight? I think it's the microbiome. We don't know that for sure. But we certainly think that's a possibility.

12:58
The microbiome is a is a Largely unstudied,

13:02
enigmatic area in human physiology. We don't know much about it. But we know it's terribly, terribly important. And so we think that the human milk actually changes that normalizes that to a unique type of microbiome, it stays with the child for a long period of time.

13:22
Now, I didn't ever thought about it for that long. And I agree the microbiome part of our immune

system is really critical. That's why a C section baby I think, is sometimes more risk that correct because they don't receive some of the mom's microbiome.

13:36
That's true. And we think some of the moms microbiome is from the vaginal canal when the baby is delivered through the vagina of the baby gets a different set of bacteria that's been studied. And they've found that that that's true that if the baby is delivered by C section, it may not have as much microbiome as we might like, but nevertheless, the breast milk itself is seated with bacteria from the mother's gut. And that's been pretty well studied by colleagues of mine and in Spain that have have looked at the microbiome and actually transfers into human milk. Certain bacteria go from the moms gut up in up to the plasma cell and into the human milk compartment itself. And, and those lactobacillus species actually are seeded by mom into her milk to change the baby's microbiome. So it's extraordinarily fascinating and cool, how nature is fixed in created this wonderful system. The other thing about human milk that most people may not realize is that in many times with a premature infant is born and 25/24/28 weeks. They don't have much of a microbiome in their gut, and they are extremely sensitive to infectious disease. And in many cases, we now know that the use of mothers only And her infant, or premature infant is often the difference between life and death. And we know now there's repeated studies that show that human milk reduces the incidence of necrotizing enterocolitis. That kills many, many premature babies, that reduces the incidence of that syndrome by 14 fold. And so many neonatologist now recognized that human milk can be the difference between life and death and those prenatal infants. And that's why the NICU's in the United States and worldwide have become real hotbeds of breastfeeding information and use.

15:40
Well, that's amazing. As I said, when I was doing my training, I saw so many kids with necrotizing enterocolitis and all the complications and we definitely weren't doing the mother's milk at that point. So that's good that

15:52
that's true. No one was using milk as early as maybe 25 years ago and colleague here at the Texas Tech of mine started using a human milk, he felt it was important. He's one of the first ones that I know that really started that and he used in the tracheal tubes, and we put a little bit of human milk in, because he thought it helped babies and turns out he was right.

16:16
That's, that's amazing. Yeah, that's about when I did training, so.

16:21
But I saw so many sick kids. And that's, I mean, it makes logical sense, right?

16:27
human milk, human milk has a wonderful, grow that antibiotic and it's called insulin growth and our IGA, which is growth a ID GA, excuse me. And then antibody that's provided by moms is the same antibody that covers all our mucous membranes covers. It protects our eyes or nose or mouth. The China urinary tract protects everything and humans and the GI tract as well. That IGA is transferred into the milk at a rate of Oh, Somewhere between eight to 1200 milligrams a day. So baby's entire oropharynx that hear your eustachian tubes, everything is coated with Secretory IgA that actually protects the baby from infectious disease. And that's from the mom. So it's a it's a very good Secretory IgA. And that's the reason breastfed babies are so much more healthier than formula fed babies.

17:26
Well, I guess I very much agree with that.

17:30
I said I would love to talk about this all day. I do want to make sure we cover some of the things about the nursing and the pregnancy. What about over the counter medicines, things like Tylenol, ibuprofen, things that maybe mom Don't even think about?

17:46
It has to be a little bit careful with some over the counter drugs. Most of them are generally All right, Tylenol is probably alright. You can use ibuprofen in the first and second trimesters. We rarely like it in the third trimester because of the effect that might have on platelet function and bleeding. So we don't ever recommend ibuprofen, third trimester, pseudoephedrine. We generally don't recommend. There's not really any hardcore data that is detrimental to a to a baby. But we generally don't recommend it. The hardcore truth about cold remedies and things like that is they don't work very well. And it's not worth the risk. Really, most of them just don't work well. And as a consequence, they're not not very useful. And so Tylenol is about the only one we ever recommend for moms. And other than that, it's just, you know, just wait the cold out or the congestion or whatever it is. You can use some anti histamines, Benadryl is fine as terrorising Zyrtec, it's fine to use. Those are generally okay. But beyond that, we don't recommend much at all as far as in certainly Not in the first trimester at all.

19:02
What about women who are very nauseous? I've seen women who were ascribed zofran is that safe?

19:08
Zofran it's kind of controversial. There's one study that showed an increased risk of cleft palate. That study has not been reproduced. In fact, there have been other studies have showed that does not occur at all. We generally are cognizant that zofran should be only used in the rare situation where moms are exceedingly nauseous and become dehydrated and are at risk from dehydration and other other problems. So zofran is not the most popular one we generally have gone back to the old old products that have pyridoxine and and meclizine and that old product used to be called Ben Becton. It was removed from the market now it's back on and Canada and us back on on the on states. It's has a different name, but it's nothing more than pyridoxine and the Anna histamine. superheroes are meclizine and that seems to work in certain cases. It didn't work in my wife's case at all. We had to suffer through it and believe me, I suffered as well. I know what I know what people are going through with horrible nausea and vomiting, right, I mean, that are pregnant. So, but we don't have a lot of good products, you can still use Phenergan to some degree. And hospitalization may be required where they can use Zoran, and and various kinds of other anti nausea meds to try to prevent the Nazi bombing. Well, we don't have a lot of good products at work. I don't recommend herbal products at all.

20:44
That was my other question.

20:46
Yeah, I know lots of people like herbal products, but the simple reality is we do not have good studies on these products. We don't know how they work. Most of the times they don't work or people just have been told that they work and they don't work really well. And we never almost never have any teratology information, right? What do they actually produce booth birth defects, pallets, anything like that we simply don't have that data. Therefore, I never recommend herbal products for analysis about the only one that's been kind of accepted is ginger. Ginger seems to help a little in some moms. And we do not think that it is to rabbit chicken. So I think it's probably all right. But if a mom has got a lot of problems with nausea, vomit, she needs to talk to her obstetrician about that. Hopefully they can figure out something to to help them

21:39
in general do any other any other herbals or in general, as I read, I bet we don't have the research or over the counter supplements.

21:46
Yeah, we not only have the research, whether they're safe to use a mother that's pregnant or a mother distressing. We don't have any data there at all. And not only that, but we don't have any data if they are efficacious and They don't many, like many people think fenugreek is great

produce milk. And there's a really excellent case study out there that shows it is not it does not increase milk production does not increase prolactin levels. And I often argue that it's probably pretty well worthless. But most people don't believe that. That's fine. I don't think it is dangerous, too dangerous to a breastfed baby. But we don't know that for sure. We don't know.

22:32
Right? I was actually told that when I was nursing my son, I was back to work and stressed and so it's more difficult to nurse. And they don't tell you but if you take a fenugreek You smell like maple.

22:43
You smell like none of that. So there's the infant, right? We know the infant and some infants were some of the pediatricians would smell them if they suggested syrup urine disease.

22:57
Right, right. Exactly.

22:57
It's not Simply the substance whatever the substance is, and infinitive Greek that causes that. So I think if moms are going to use vinegar, they need to let her pediatrician know that I'll just like that the urine will smell just like maple syrup. So that's

23:17
a serious metabolic.

23:18
I personally do not think it works, but we don't have any studies long term studies. We only have one nice, really nicely done case report that showed it clearly did not work.

23:31
Okay, I don't remember it helping or not, I just remember smelling like maple. So one of the things that I think comes up a lot is a lot of women are probably a lot of people now are on antidepressants and anti anxiety medicines for you know, depression, anxiety, and how safe are those? If you think about it, those are altering neuro chemistry, and how does that affect the baby? So how safe are those in pregnancy and in nursing

24:00
Well, there's a two part question. The first part question is how safe is depression, untreated depression in pregnancy? Right? No, that is terrible. It's absolutely awful for moms and for their

infants. And so, pregnant moms are gonna have slightly smaller babies a little small for gestational age babies that have more difficult, more traumatic deliveries that's quite well known and early postpartum, they don't take care of their infants as well. They simply and we've known everybody in pediatrics is known for years that there's nothing worse for an infant's neuro behavioral development than than a depressed mother. Right. So now, the treatment of depression has become straightforward and absolute in obstetrics. Pediatricians almost always decide that it is far safer for the infant and the mom to treat the mom for depression. So it's quite widespread, I estimate something around 15 to 20% of pregnant moms are on an antidepressant of some sort. Wow. And that's, and the good news is, is that all the classic studies that have been done thus far show there's no untoward complications for the baby. Now, some of the earlier studies that were done suggested there may be a little few complications of pulmonary hypertension the first week postnatally and the baby. Those are exceedingly rare, exceedingly rare. And babies seem to get over that just well and define. But the most important thing is that, that that the mom's health is terribly important. postnatally as far as breastfeeding, and so, first of all babies now I'd say the vast majority, probably 80% of moms that use a 90% while pregnant, are given so long for surgery. That is by far the most. Come on. I'm not sure that's the most the best way to do it. Because all of us in this business know that not all antidepressants work on each individual. And so you never know which one's going to work and that mom, and she comes in on paroxetine, or she comes in on some other medication. It's not always certain that if you give her or transfer over to soloff, it's going to work. But I can tell you right now that 90% of Obstetricians will probably do that. They'll convert them to Zoloft. And mom seemed to do all right. I don't think we have any studies to know how well that works and moms during pregnancy, but it's better than nothing, I think, in postnatally postnatally. We know that in breastfeeding, that all the antidepressants are just basically pretty well fine to use. Their transfer into breast milk is quite low. The transfer of Zoloft into breast milk is One to 2% of the maternal dose for Prozac is the highest at about somewhere around eight maybe to 14% but babies seem to do just fine as well. And so we don't worry too much about most of the I'm impressed and say only one I do not like is sell a Cox IP excuse me, not silicosis, citalopram, citalopram, Scott, we have some number of papers and I've had a lot of calls myself on babies that are quite sedated with citalopram. Until but mostly other antidepressants are just fine. And to use, there's some controversy about using Paxil or paroxetine during pregnancy. One study came out showing a higher incidence of going toward complications in the baby cardiac anomalies a second study came out From the mother of center in Canada, with an enormous large population of moms that used paroxetine, and a totally debunked philosophy proxy to induce cardiac side effects. So I don't believe in anymore that they do but that old people with 200 or something, patients and as suggested they got some cardiac anomalies. And that's the FDA still puts a blackbox warning on Paxil. I don't think it's true, but nevertheless, that's there. But most of all, I think almost all antidepressants require time to use in pregnant moms and and breastfeeding moms. You just need one that works. But

the most important thing is a healthy mom makes a healthy baby. That's really important to remember.

28:50
Yeah, that is he said, I always think about the risk benefit and that is proceq. That's a more long acting, longer acting is that why more gets into the breast milk?

29:01
no, it's not why more gets into breast milk is simply the the kinetics of the drug itself. I don't know exactly that anyone knows the reason why the levels are higher in breast milk. But they just are. And and so the only other problem that we find with the anti anti depressant is that we do know there's an incident of significant incidents of a slight withdrawal in infants in the early one to two weeks postpartum. We see it two most commonly with paroxetine or Paxil. We also see it in about upwards of 30% of infants on Paxil and with search will enter so long. So there is a slight withdrawal and often I get the telephone call well I have a baby and withdrawal early postnatally and they're worried that it maybe it's an opioid demand was second or something like that or, or antidepressants or benzodiazepines. People always seem to forget that the antidepressant infants can withdraw off of antidepressants. It's, it's a safe withdrawal and generally no one ever treats it hardly, which is wait about a week for it to go away. But I think it's important because it's one of the doc sees that the babies is tremulous and has withdrawal reaction, just like an opioid. They always assume it's an opioid or the mother was taking, not the, the antidepressant. So I think it's important to remember that and the rate is not insignificant says highs between 20 and 30% of babies will show some little slight symptoms postnatally when they withdraw from paroxetine or from circle, there's a lot

30:47
Okay, no, I didn't know that. So it's not more sedation. It's actually kind of a Is it like a colicky baby or like

30:54
a colicky baby, the baby's very irritable, has a slight tremor, it looks on almost identical to opiate withdrawal, and that's why it's misconstrued, but it's just simply withdrawal offer of the antidepressant. We don't see it as often it's all very rare, although I've had one case, a colon, on on, on Prozac, that one took about a week and a half to occur two weeks to occur. But it's more it's quite common with the other short acting antidepressant. So the shortest is paroxetine, or Paxil the shortest half life. The next shortest is so long.

31:36
Okay. What about anti anxiety medicines?

31:40
anti anxiety medicines are sometimes a problem. The baby's probably going to have a significant withdrawal off of those if they're used during pregnancy. There are all different kinds of anti anxiety medicines that are used. The most common actually today though, are the antidepressants. They're the classic ones. Real treatment, the treatment for anxiety disorder. But in many cases moms are on a benzodiazepine, like Lorazepam or sometimes valliant. In sometimes ataman or some other kinds of anti benzidine, those can all have withdrawal effects. And it's quite well known, we know that those can occur. If the mom's using those all during pregnancy, believe me, the baby's going to have a withdrawal from those when it's born.

32:33
Okay, and wouldn't be the same kind of symptoms.

32:36
Same kind of symptoms. Yeah, the baby's very irritable, very anxious and tremulous and, and the docs need to sit back and decide, well, is this from a benzodiazepine? Or is this from an opioid or is this from an antidepressant? So it's very important to know the mom's history there so they can know what to do. There's not a lot of treatment for benzodiazepine withdrawal, a slack that have been to the eyes have been like Adam and always. Yeah, basically, most I don't think most clinicians treat those I simply wait for them to wane. The opioids so are treated because they are dangerous. Dangerous. Yeah, they're dangerous and, and difficult to treat and you have to do something, believe me by the number of telephone calls we get. Many, many mothers are on chronic opioids for chronic pain syndromes for abuse syndromes, there loss and lots of moms on chronic opioids, and those moms and their infants are probably gonna have to be treated postnatally for withdrawal.

33:45
Okay. And I always think about something maybe some women don't even tell their doctors what they're on that sure if they're on things like opiates or

33:53
that's true, I wonder, a very common call or very common The question we get on our, our web surveys, web server is that when do I have to stop this opioid? So I don't know, baby doesn't go through withdrawal at birth. We get lots of those calls, when I'm taking, you know, hydrocodone or oxycodone and taken to them with a for pain, chronic pain. When do I have to stop this? So the baby doesn't go through withdrawal. So it's a very common call. It's not only they're worried about the baby going through withdrawal, but you're worried about the doctor knowing that they're using those during during pregnancy. Right. So it's very common, I'd say, I don't know what % is, but it's significant.

34:45
Yeah, I would think that that is when I would be embarrassed or or frightened to say that. Yes,

34:49
yeah. Marijuana, particularly a big one there. The mothers are using marijuana. Many of them want to know how long they have to stop before the baby and the mom or not Good screen positive. So it's right.

35:02
Oh, wow. That's it's so frightening to me that you would, you know, not think about that earlier but I thought because I one of my babies is born by C section. And obviously that's a surgery with a lot of pain. So what do you recommend for women who are nursing, you're just at a C section in terms of pain management.

35:22
Well, fortunately, most pain medications only enter milk in really large doses. And so you have to treat the pain those moms with C section pain, and I really do recommend that they use the hydrocodone not so much oxycodone hydrocodone if they could because the levels of milk are quite low. But sometimes with moms with extreme pain, they may have to use hydromorphone for a few days. All right, as well. Just watch the baby for sedation. Watch the baby for apnea. If the baby if the baby's really premature and the center prematurely We don't worry too much about apnea. Because I know that have been otologist and nurses sitting there watching them constantly and I don't think you have to worry about. It's the full term baby that goes home, and where the mom is using heavy doses of opioids, but you have to be real careful. If the mom is using heavy doses before delivery than the babies are, might have to be treated probably will, particularly those methadone mom. So method moms and their babies are going to the babies are for sure going to go through withdrawal and will have to be treated, perhaps for a long period of time depending on the dose. But Mom center on other drugs like oxycodone, hydrocodone may or may not need treatment or the infants may or may not treatment, it depends largely on the withdrawal in the baby, and whether the baby mothers doses was high enough to reduce complications. So they don't kind of all depends, but opioids are problem, moms need to be forthright with their doctors, that they're taking this or that so that they can treat the babies better. And it's, it's very important for moms to be forthright with their doctors and tell them what they're up to. So that the doctor and the nurses and people can treat their infants and take care of them better. So let's that's terribly important.

37:21
Right? That's a big safety issue.

37:24
Like, if she's taking a medicine, does it matter if you know, I was thinking if you, the mom, nurses and then, you know, take some medicine after Is there any difference about when she takes a medicine in terms of nursing in terms of timing,

37:38
as far as what the medicine is, it depends largely on the half life of the drug. If it's a short Half Life product, we always suggest the mom, breastfeed the baby, take the medication then, and then she can wait three or four hours before she breastfeeds again, many of the short Half Life preparation like ibuprofen, like aspirin, like many penicillin is like many medications they will peak at about one hour when you take them poorly. And then they drop off quickly and many of them will be largely gone from the plasma compartment about four or five hours. And so a little trick like that we use that all the time, but only for short halflife drugs, drugs that have really low half life. It won't work. It won't work on the antidepressant say that short is half life on antidepressants you probably 24 hours. It won't work on those at all. It only works for drugs like kind of selling some antibiotics. It works for ibuprofen and short half life, and we'll see analgesics it'll work a little bit on hydrocodone and oxycodone and the levels will be dropping by four or five hours. And the most important thing to remember is that the amount of drug for the transfers into milk is a function of the plasma level. Plasma levels are high in the transferring to breastfeed. Milk is going to be high. Plasma levels are low or lower, then the transfer into breast milk will be lower as well. But some drugs that doesn't work well with alcohol is a classic example. Alcohol goes into breast milk with a one to one milk placement ratio. It goes right straight into breast milk. So the best advice on alcohol is wait two hours for every every full drink that you take a full glass of wine, a can of beer, a full shot of whiskey, you need to wait a minimum of about two hours for every drink. So if you drink two drinks, wait four or five hours before you go back to breastfeed. Wow, okay, alcohol. Alcohol actually suppresses milk release. It doesn't suppress milk production. But it suppresses milk released. It turns the oxytocin reflex off completely turns it off, so that we have alcohol on board. You're not going to Have a letdown. And that study has been clearly done before. And it was really remarkable how alcohol plasma level just totally shuts the oxytocin reflex off. And so a lifestyle that bear will help you make more milk is totally absolutely wrong. It won't do it at all. And in fact, while the alcohol is on board, you won't have any let downs and you won't have any milk released to the baby.

40:26
Wow, that's a really important,

40:27
interesting phenomenon. But most drugs, many drugs, antibiotics and sulphonamides and things like that, well, short half lives. Yeah, you can wait four or five hours and then breastfeed

that the dose and your milk will be half what it was or lower in those cases, but again, it's it's drug by drug, you have to know your drugs. Okay,

40:51
that's why you need the resource. What about, you know, said it's different nursing, you know, like a newborn claustrum versus like a six month old or well You're old. So is there any? I mean, I think we spoke a little bit about, like the first month. Like, is it more dangerous to take certain medicines and like the first month in nursing versus six months, or how old the baby is.

41:15
Remember, the dose in milk is a function of how much milk you have it during the cholesterol phase, you're only making maybe 60 cc's a day. And therefore, even if you have a one to one relationship between the classroom and the plasma compartment for the drug, then the transfer is still the dose, the absolute dose of transfer is quite low. And that said, because there's not much milk, but after about the first four or five, six days of milk production goes up to 600 cc's. 700 cc's a day. by one month when the milk production is way up to six, between 600 and 750 CCS per day, then that's when you worry most about the drug because that's when The dose of the medication that is presented to the baby is the highest. And they're in after about six months when the milk production starts to dry up and go down when mothers start to introduce solid foods, which they should a meal production drops off and off and off and off until about 12 to 14 months, it goes down maybe to the 200 cc's per day. And so at that time, and even later, 18 months to two years, it's probably even, maybe 60 cc's, maybe 100 cc's per day. So the longer the longer you go postpartum after six months, the longer you go postpartum, the less less milk there is pants. Generally, the less drug there is. And so when a mom calls up and she's one month postpartum, we get real interested in how much what the drug is how much is transferring, when she calls up, and she's talking about an 18 month old baby that breastfeed once, maybe twice a day. We don't worry about those for the most part because the baby's ability to metabolize drugs has gone up enormously. And the dose and the transfer them total milligrams transferred in 200 cc's. A mil is just not enough to bother a full grown baby. Okay? Oh, that's, that's important to remember. And so we don't worry so much. After about six months, the risks of the medication goes down largely as a function of the dose of milk.

43:34
But about the maturity of the infant, like their liver, their ability to detoxify their liver and kidney function

43:41
pretty well. We know there's a rate that that's quite well known in pediatrics and that's that that an infant's liver increases in metabolic function is cytochrome p 450. function, about 10% per

month of life. About 10 to 12 months of life a baby can actually get better stabilize drugs faster than an adult can, oh wow reasons why their livers real healthy and is and is highly metabolically active by about 12 months and to their liver to body size is much larger, their livers much, much larger to their little body. And so they can actually metabolize drugs quite well. Caffeine is the classic example. Whereas that birth the half life of caffeine is like or 10 hours or 20 hours is quite long. And so, at 10 months or 12 months, it's dropped down to two to three hours. And so it's go down quite quickly with with a so the liver functionally becomes very active at about a year of age. And each month it goes up at about 10% per month. So, so yeah, the older baby is the less we worried about medications and that's particularly so when Because simply milk production goes down. Most women don't want to hear that.

45:05
Right?

45:07
That is reality. And the reality is that 18 to 24 months of age is getting quite minimal levels of milk and hence, are getting quite low levels of drug. Okay, fortune is good. It's nature's way.

45:22
Right? Okay.

45:23
Well, do you have any final comments or kind of a summary statement? This has been amazing information. I've learned a lot and I'm a pediatrician. So I wish I'd known some of this personally, I do.

45:34
Well, I think mothers so I'm a big believer that you treat them or keep the mom healthy. For mom needs an antidepressant or anti anxiety medication. Then you use that because a healthy mom really makes a healthy baby. If the mom's in a chronic horrible pain from arthritic syndromes or something like that, treat the mom get the mom healthy because she's gonna interact better with the baby. We all know in pediatrics that a depressed mom that's in a lot of pain and depression simply doesn't interact with her baby, the neurobehavioral development of the baby is retarded by one year of age is well known. So I'm a big believer that you treat the mom, get her healthy. Choose the right drugs if you can, if you don't know what those are, call us up and ask us, we can give you advice on what kinds of medications to use for whatever syndrome, and if it's very important, keep them on healthy. I'm a big believer in that because they make better babies and make healthier neurologically better babies. And so, and don't let him suffer just because you're worried about the transfer of the drug. Most drugs transfer into

milk in relatively low levels. I've got more than 1000 drugs in my database 15 1600 and I bet those away of studies on the average probably less than four or 5% of the drug transfers to the baby. And almost every instance that's quite safe for breastfed babies. Keep the mom healthy, and she'll make a better baby and a healthier and a happier baby. And that's very important. And if and if you don't know what to use, call us up, we'll tell you what to do. I do that every single day, advise Doc's and their healthcare providers on what kinds of medications would be best for that mom syndrome. This may be a little bit better than that drug because if she's breastfeeding, that's what we're here for.

47:36
Right? That's great. Well, tell me what what is the number? I think that's important information, the number to call

47:43
806-352-2519. Now, we have limited funding, and therefore all I have to two and a half call specialists at any one time and the phones are busy all the time we do more than 100 calls every day. And we're just really, really busy. With calls, keep trying, you'll eventually get through. If you can't do that, go to the infantrisk.com website. We have a web forum there where you can go in and ask questions on the webform. Right now, I've answered more than about eight to 10,000 questions about just about everything you can imagine, right out of us to, to see we to tie them to radioactive isotopes. And so the website has an enormous amount of information. We have millions and millions and millions of visits every year. So the websites have got a lot of information that we simply can't take all the calls, but at least we can help you with information on the website.

48:50
That's great. Well, Dr. Hale, thank you so much for this amazing information. I've learned a lot and I'm sure women who are pregnant and nursing will very much benefit from this information. So,

49:02
I hope so. Just remind him, Go see their doctor go see their health care provider when they get pregnant. That's the best thing in the world they can do for their babies.

49:11
Right? I like the healthy mom healthy child. I think that's true.

49:17
Okay, thank you very much. You Buh bye