

Fourth Trimester Podcast

Episode 119: Morning Sickness Causes and Cures: Hyperemesis Genetic Link and Practical Advice from USC Geneticist Dr Marlena Fejzo

Sarah Trott: [00:00:05] My name is Sarah Trott. I'm a new mama to a baby girl and this podcast is all about postpartum care for the few months following birth, the time period also known as the Fourth Trimester. My postpartum doula, Esther Gallagher, is my co-host. She's a mother, grandmother, perinatal educator, birth and postpartum care provider. I've benefited hugely from her support. All parents can benefit from the wisdom and support that a postpartum Doula provides. Fourth trimester care is about the practical, emotional and social support parents and baby require, and importantly, helps set the tone for the lifelong journey of parenting.

When I first became pregnant, I had never heard of postpartum Doulas, let alone knew what they did. So much of the training and preparation that expecting parents do is focused on the birth and newborn care. Once a baby is born, often the first interaction parents have with medical or child professionals, other than the first pediatrician visits, is the six-week checkup with the OB/GYN. *What about caring for mama and family between the birth and the six week doctor visit? What are the strategies for taking care of the partner and the rest of the family while looking after your newborn?*

Our podcasts contain expert interviews with specialists from many fields to cover topics including postpartum doula practices, prenatal care, prenatal and postnatal yoga, parenting, breastfeeding, physical recovery from birth, nutrition, newborn care, midwifery, negotiating family visitation, and many more.

First-hand experience is shared through lots of stories from both new and seasoned parents. Hear what other parents are asking and what they have done in their own lives.

We reference other podcasts, internet resources and real-life experts who can help you on your own parenting journey. Visit us at <http://fourthtrimesterpodcast.com>

Sarah Trott: [00:00:00] Hi, this is Sarah Trott and welcome back to the Fourth Trimester Podcast. I'm here with a special guest today who I will introduce in a moment. And before I do, I'd like to remind everyone that we have a website which is fourthtrimesterpodcast.com. So please go there and sign up for our newsletter. And also please do hit subscribe or follow wherever you listen to this program so that you can be alerted every time we have a new episode.

Sarah Trott: [00:00:25] And today's episode, our topic is morning sickness causes and remedies. It's a really important topic. It's something that impacts around 80% of pregnant people who are experiencing some degree of nausea and in some cases it's really severe. I was one of the people who did fall into that like less severe, but certainly impacted morning sickness category. So I have that first hand experience. and so when I learned about the amazing work that's being done by our guest I was just thrilled to invite her onto the program and talk more about it, because she has discovered a genetic link between morning sickness and its cause, so that's really fascinating.

Sarah Trott: [00:01:12] Our guest today is USC geneticist Marlana Fejzo. She was named as one of time magazine's 2024 women of the year due to this work and her discoveries, which is really amazing. I also really appreciate that she is turning this attention back towards the work itself and back towards inspiring other female scientists in particular and scientists around the world to continue to dig into lesser research diseases and illnesses. So I'm really thrilled to have her here today. Marlana is going to talk about her work, her story, and the ins and outs of morning sickness and what pregnant people can do to address it. So we're so thrilled to have you here today, Marlana. Thank you.

Dr Marlana Fejzo: [00:02:05] Thank you for having me.

Sarah Trott: [00:02:07] Yeah. So I gave you a little bit of an introduction. I'd love to hear an introduction of yourself in your own words.

Dr Marlana Fejzo: [00:02:14] Yes. So I am a women's health researcher. I trained as a geneticist and did my first studies on uterine fibroids. I found the first genes for uterine fibroid tumors for my PhD. And then after suffering from hyperemesis, went on to study nausea and vomiting of pregnancy to try to identify the genes involved in that and the cause I've also done other studies of women's health as well, including, for example, breast cancer and ovarian cancer. But my main focus now is on nausea and vomiting of pregnancy.

Sarah Trott: [00:02:55] Yeah. And it's not that well researched. Is that right?

Dr Marlana Fejzo: [00:02:59] Yeah. I mean, I'm one of the only researchers in the United States and in the world working on this. So we definitely need more people out there working on it, but I'm doing the best I can with the small army that I have.

Sarah Trott: [00:03:16] Well, thank you so much for the work you do. And, I mean, this research is not the only thing you're doing. You're currently a professor. Is that right?

Dr Marlana Fejzo: [00:03:23] Yes. I'm a faculty researcher at the University of Southern California and also for the Hyperemesis Education and Research Foundation, or HER foundation. And I'm also the chief scientific officer of a company called Harmonia Healthcare.

Sarah Trott: [00:03:41] So you've got a little bit going on there. And you've made this research your life's work. I should also mention you received your PhD in genetics from Harvard in 1995. And you've been, and as you mentioned, you're currently working at the center for Genetics and Epidemiology at USC.

Sarah Trott: [00:04:01] So, okay, let's talk about your own story. Tell us more around the inspiration for your work and how this relates to you personally.

Dr Marlana Fejzo: [00:04:16] So I got pregnant in 1996 for the first time and had very severe nausea and vomiting in pregnancy. But I was not diagnosed with the most

severe form, which is called hyperemesis. And in that first pregnancy, even though I lost 15 pounds and went to the ER twice I did not get any diagnosis. And I did happen to get better in the second half of pregnancy.

Dr Marlana Fejzo: [00:04:46] So in my second pregnancy I didn't think it could be worse, but it was way worse than in the first pregnancy. In the second pregnancy, I could not eat, drink or move without violently vomiting, so I just had to lie completely flat and completely still every second of every waking moment. So I couldn't even turn to the side. I couldn't get up to go to the bathroom or brush my teeth or shower or anything for weeks and weeks. So it really was a form of torture. And my doctor, I had a home IV nurse coming and IV fluids. and then my doctor tried seven different medications at once, but nothing helped me to be able to eat. and so eventually I was put on a feeding tube, but it was too late, and I lost the baby in the second trimester.

Dr Marlana Fejzo: [00:05:40] And during that whole time, my doctor told me that he thought I was just trying to get attention from my husband and my parents who I needed to take care of me because, like I said, I couldn't get up to go to the bathroom or anything, so I needed even to call them when I needed a bedpan change or medication change which was not something that I wanted. I did not want that kind of attention.

Dr Marlana Fejzo: [00:06:10] But unfortunately, sometimes when people don't know what causes a disease, and it's a disease of women and a disease of pregnancy, pregnancy and pregnant women there is kind of a missed misogynistic theory about the cause. And so I was too ill to argue at that time. I even had to use a buzzer because I was too weak to talk. eventually. But later, after I recovered I decided to look into what was known about it, and I saw that there was so little known about hyperemesis. I knew that there was a biological cause, so I decided to look into it and devote my life to figuring it out.

Sarah Trott: [00:07:02] That's an incredible story. Thank you for sharing it. And it's so personal. And I'm really moved. And I just I'm really sorry about what happened to you. And just on all levels, I mean, going through that kind of sickness, then to have that compounded and being dismissed by medical professionals who are meant to be there

to take care of you. My goodness. you know, that just must have been psychological torture. on top of it all and to feel like, hey, I know some, like you must have known. Like I know something is wrong. I know something's not right. And then to have the people there around you not helping you, it's just devastating to hear. And, of course, a devastating outcome as well. So I'm so sorry to hear that. and what a powerful inspiration to then turn around and this work that you're doing, like you are you're saving others from going through a similar experience like that, which is really powerful. Thank you.

Dr Marlana Fejzo: [00:08:01] Yeah, I hope so. I hope it helps. It's been a long road. And still to this day, people are still treated like I am, unfortunately. I mean, it's definitely getting better, but it's very slow progress.

Dr Marlana Fejzo: [00:08:16] Yeah, I can imagine. Well I want to I want to help give a platform for your story and your work here. Should we start with just kind of spelling out, like what? What is morning sickness and how common is it?

Dr Marlana Fejzo: [00:08:31] So it's really a spectrum where 70%, at least of women have some nausea and vomiting of pregnancy. and so there's some that have none. And then it goes all the way to the very severe end women with hyperemesis which is really about the worst 2 to 3% of women it's much more severe than normal morning sickness or normal nausea and vomiting. it's really interferes with your ability to perform your daily activities. you have electrolyte disturbances from the dehydration. because you can't drink enough fluids or keep enough fluids down.

Dr Marlana Fejzo: [00:09:16] And so generally, people with hyperemesis will start to lose weight from not being able to take enough nutrients and food. And, and eventually we'll need treatment which is usually visiting the emergency room due to severe hydration. So that's something that we're trying to change with our new company Harmonia Healthcare, where we are going to be opening centers. We opened our first center in New Jersey and in May, and we're opening the next one in New York City.

Dr Marlana Fejzo: [00:09:53] And then we hope that we can expand all over the US and the world as a way to better treat patients with hyperemesis so that people aren't so sick and going to the emergency room to treat their severe symptoms and dehydration, and waiting for hours exposed to other ill people while they're newly pregnant, and rather that they go to you know, a clinic where they don't have to wait forever to be treated and get the treatment right away with doctors that are well trained in this instead of emergency room doctors that certainly often are not well trained in how to treat hyperemesis and give the medications that patients need.

Sarah Trott: [00:10:37] That's just brilliant to be able to go into somewhere where people already know what to do, already understand, and you're not waiting in line behind a broken arm and who knows what else in the waiting room there. Yeah. that sounds so brilliant. Well, what have you heard? Any results or any feedback from that initial pilot in new Jersey?

Dr Marlana Fejzo: [00:10:59] Yeah. It's great. People love it. I mean, people are driven to tears with joy. and there are some people come in with their mothers also. And everybody is so happy. Yeah. It's just emotionally a much better way to treat women that are suffering so badly. So far, things have been really good. We only opened in May, so it's only been a few months, but I know it's going to be a game changer. And we're modeling it after the first clinic in the United States, which is actually in Birmingham, Alabama, which also has been a game changer for hyperemesis patients.

Sarah Trott: [00:11:39] And is it only hyperemesis? If people have like medium nausea, can they go and get help?

Dr Marlana Fejzo: [00:11:45] Oh yeah. Definitely. So we're not going to turn anyone down. if and a lot of times people don't know whether they need help or not. They don't know what how bad is bad enough? so they can come to the clinic and get a consultation, and we do blood tests to see if they need certain support - sometimes people become anemic because they're not able to keep down foods with iron and things. So we can check and see what they need and, and make sure it's addressed.

Sarah Trott: [00:12:18] I'd love to see this rolled out in every maternity ward, in every hospital. That would be so incredible. So you're, like, already going to somewhere familiar and you know, it just sort of makes sense to have that as an adjunct to the existing services that are there.

Sarah Trott: [00:12:35] Morning sickness is kind of a misnomer, isn't it? Like, I don't know about you. Well, I know a lot about you, but for me, like, mine was kind of mild, but I felt nauseous in the evenings. Is that pretty typical?

Dr Marlana Fejzo: [00:12:48] It's a complete misnomer to say morning sickness. It's only slightly more common in the morning, but most people have it at all different times of day. and of course, with hyperemesis and more severe forms, people have it all day or some level of nausea all day. And it can also even last nine months instead of just the first trimester.

Sarah Trott: [00:13:11] So yeah, I was talking to my mom. She was actually traveling around Europe when she was pregnant with me, and she didn't realize she was pregnant, and she said she lost weight because she didn't want to eat anything and nothing had the right taste, and all the food tasted terrible. Everything was really bitter. And I had similar symptoms with my pregnancies of just like just didn't that first trimester was just kind of the pits.

Sarah Trott: [00:13:36] It's interesting to hear it can take different forms and different symptoms, but you know what's really fascinating to me is that even though women have - it sounds like you said a spectrum, like different degrees of impacts and symptoms - you've been able to narrow it down to a single cause or one of the main causes that we know of.

Dr Marlana Fejzo: [00:13:55] Yes. So the first thing that I needed to do was to see whether there was evidence that it was genetic. And so I first did a familial aggregation study, which is a study to see if it runs in families, Because I didn't have it in my family. you know, it can. Genes can come from your mother's or father's side, so you might not always see it in your family. but so it did turn out to run in families. So there was a 17

fold increased risk of having it if your sister had it. So that provided some evidence that there might be a genetic component. And based on that, I started to collect saliva samples to isolate DNA from patients all over the country that had hyperemesis. And each of them was asked to recruit a friend or acquaintance who didn't have it to serve as a control. And so we did then compare people.

Dr Marlana Fejzo: [00:14:50] So first before that, I applied for funding to sequence those people, but I did not get it. And so I partnered with the personal genetics company 23 and Me, and they had a brilliant model, which they still are using, which is basically asking their customers whether they want to participate in research studies where they ask them questions. And so I contacted them and asked them if they could add questions on hyperemesis to their pregnancy survey. And they did. And it was a very fruitful. And they had over 50,000 people who had answered that survey, that they had genetic data on that agreed to participate in the research study. And so we compared their genes the people who did have hyperemesis to those who didn't. And we found that the greatest genetic risk factor was to a gene that codes for a hormone called gdf15, which is a nausea and vomiting hormone. That is the greatest genetic risk factor for hyperemesis.

Sarah Trott: [00:15:58] That's so fascinating. Good job, 23 and me for offering anonymized data for pushing the science forward. That's really, really cool. And so does this gene, it's in our bodies this whole time. It's only triggered during pregnancy. How does that work?

Dr Marlana Fejzo: [00:16:16] Yeah. So everybody has this gene men and women and everybody has low levels of this hormone in their blood at all times. And it's actually its normal role is to the hormone is to rise and signal your brain when something is wrong. So if you notice that when you're sick, you don't feel as hungry, or sometimes you even feel nauseous when you have a virus or if you are injured or you have cancer oftentimes, or different diseases, any time any organ is under any kind of physical stress, it will send out this hormone as a signal to tell your brain, to tell your human to rest and recover, rather than going out and searching for food. So I think it is an age old biological mechanism that has evolved to signal to avoid eating and rest and recover.

And so the placenta, when you become pregnant produces massive amounts of this hormone way more than you normally have when you're healthy. And and so when that hormone gets produced in these massive amounts, it causes that nausea and vomiting that many women in pregnancy and pregnant people have.

Sarah Trott: [00:17:53] Okay, so it's coming from the placenta.

Dr Marlana Fejzo: [00:17:56] Yes. So largely mostly from the placenta. but it can come from other organs if they're injured or you're you have the flu or something like that.

Sarah Trott: [00:18:08] Yeah. So so it's basically the same gene that you're going to be contending with if you're feeling nauseous when you're sick right outside of pregnancy.

Speaker3: [00:18:17] Yes. For the most part, yes.

Sarah Trott: [00:18:21] Oh, wow. That's so fascinating. Well, okay, first of all is this limited to pregnancy only? And then, what can we do about it?

Dr Marlana Fejzo: [00:18:37] So yeah it's not limited to pregnancy only. Actually about 20% of cancer patients, their cancer also will produce massive amounts of this. And so it also causes that wasting disease that you see with cancer patients where they're unable to eat anymore. And they just sort of waste away and die. They die from this hormone rather than from the cancer themselves in 20% of cancer patients.

Dr Marlana Fejzo: [00:19:01] And so yeah, which is actually fortunate because to answer your next question, what can we do about it? Because it is involved in cancer. Pharmaceutical companies have created ways to block it using an antibody approach. so they've designed these medicines that are called antibodies that block the hormone from causing the nausea and vomiting. And they're testing it out in cancer patients now. And I'm doing everything I can to try to get these companies to also test it in pregnant women as well, and pregnant people because you know, I think it's very, very important. But the companies are often averse to testing drugs on pregnant women. But clearly it

needs to be done. So there is one company that is moving forward with it that I know of, so we'll see how that goes.

Sarah Trott: [00:20:06] So the same cure potentially can help people with cancer patients with the wasting problem as well as the nausea that we call morning sickness.

Dr Marlana Fejzo: [00:20:18] Exactly. Yeah. If it turns out to be safe in pregnancy, which I'm very hopeful that all the evidence so far suggests that it will be so. We'll see.

Sarah Trott: [00:20:28] Ah, I mean, how fantastic to have a cure for morning sickness. That would be wonderful. And could, I mean, could it be applied to all of the 70-80% category or potentially only just the more extreme cases?

Dr Marlana Fejzo: [00:20:42] Well, so that's thinking way into the future. So first we have to make sure it's safe and even if it appears to be safe in animals so far that does not necessarily translate to people. So we have to start very slowly and carefully test it in smaller subset of pregnant women where the benefit is most likely to outweigh the risk, which is going to be in the most severe patients, of course. But eventually, if it works and it turns out to be safe. I don't see any reason except for the financial reason in that it may be expensive to treat every pregnant woman with this. So you know, so that's, of course, a barrier. but eventually this is way off, but hopefully one day it could be. And people will be once you have one medication that works and helps so many people and you realize that it limits the adverse outcomes because we are more and more learning that there are poor outcomes for the children and the mothers who suffer from this disease.

Dr Marlana Fejzo: [00:22:02] So once we see improvements based on the medication, I don't see any reason why the benefits of treating more people with this drug would outweigh the risks at that point. And then people will start to hopefully design drugs that target the same pathway but are maybe not as cost prohibitive. So we'll see. That's way off though.

Sarah Trott: [00:22:31] Well, that's the future we want to get to. I love it, I love that vision. yeah. I mean, honestly, because there's just this idea that morning sickness is just part of it. You just have to live with it. You just have to, like, suffer through it. So what a fantastic dream to think that it just is actually going to be something that's treatable.

Sarah Trott: [00:22:54] But, what actually is the treatment? We're not talking about changing anything genetically.

Dr Marlana Fejzo: [00:23:04] So it's a little bit complicated. But I will try my best to explain. So during pregnancy this hormone is massively produced by the placenta and leads to nausea and vomiting. So the treatment during pregnancy would be to have some kind of antibody, like I said before, or something that would block the hormone from binding to the nausea and vomiting center of the brain to signal that nausea and vomiting. So that would be the best way or to lower the levels of the hormone during pregnancy.

Dr Marlana Fejzo: [00:23:41] But there's another approach that we found that may also work, which is what what we found was fascinating. So I found these mutations in this hormone and, and variants in the hormone. And instead of making those variants coding for the hormone to make too much of the hormone, which is what we first hypothesized, because we know that there's higher levels in patients overall with hyperemesis and that it causes nausea and vomiting. It turned out that actually these patients have a genetically predisposed to have lower levels of the hormone before pregnancy. So what we found was going on is that the patients who are more at risk for hyperemesis are more at risk because they are not used to that massive dose that comes on during pregnancy, and that if we increase the levels before pregnancy, we may be able to get them used to or primed to the, the hormone so that when it gets produced in massive amounts when they get pregnant, they're already used to it and they don't get as severe symptoms.

Dr Marlana Fejzo: [00:25:00] So another way to prevent hyperemesis, even prior to getting pregnant would be to increase those hormone levels. And one drug that we

know that already causes an increase of that hormone is called Metformin. And it is a cheap medication, relatively cheap and relatively safe medication. It's already used to increase fertility for patients with PCOS. And so I want to do a trial to increase levels prior to pregnancy with that extended release Metformin and see if we can lower the risk of those patients that are at high risk for getting high hyperemesis. But I need funding for that trial.

Sarah Trott: [00:25:54] So okay, people who are listening, if you've got deep pockets you know what to fund next.

Dr Marlana Fejzo: [00:26:02] I've applied. My grant was rejected. It's \$800,000. So it's a lot. Clinical trials are a lot of money. It's not going to me and my salary. It's going to all the things that go with it, like buying the drug and mailing the drug and paying the endocrinologist and study coordinator. It just all adds up. So but yeah, I would really love to get that study done. Patients are writing me all the time, asking me when and wanting to be a part of the trial, and I can't do it even though I'm dying to until I get funded.

Dr Marlana Fejzo: [00:26:35] There is another company, Lilly, that also has rather than Metformin. They actually have a gdf15 analog. it's kind of like a copy of the hormone. and so I really would love if they would get on board and, and do the trial as well, but I haven't heard back from them yet, so.

Sarah Trott: [00:26:59] Well, it's a bargain in the grand scheme of things and the potential impact it could have.

Sarah Trott: [00:27:07] Yes. How does someone know that they would want it? How do they know that they're low? Would that just become potentially part of a screening process in a women's health check? You might not even know that you're wanting to have a baby someday. And maybe it's just something like, oh, by the way, we're going to screen you for this. And then if you do think that you want to grow your family someday and become pregnant this is something you could consider. Because otherwise, how would someone know until they're in it?

Dr Marlana Fejzo: [00:27:40] Right. That's a very good question. And we are working on that. We're not quite there yet, but contact me next year and I'll give you an update. Yeah. There isn't a way definitely to know, except for if you've had a previous pregnancy. Most people have had hyperemesis in one pregnancy, about, we found in our study that 80% of people have it again. So if you have it, if you have a family history of it, those are the big risk factors where you might want to just start that type of treatment once it becomes available. But yeah, we're working on it. It's all very new data results. So yeah.

Sarah Trott: [00:28:22] Ask your mom, ask your sister, ask your aunties, ask people around you and your family. It sounds like that could be both sides.

Dr Marlana Fejzo: [00:28:28] Yeah. A lot of people tell me, oh, I don't have it in my family, but you have to ask both sides 50% of the time it comes from your father's side, so you might not see it in your father. You know, have to ask your father's father. Your father's mother.

Sarah Trott: [00:28:47] Yeah. There you go. Well, that's that's a good point, because, like, a lot of these things, when you talk about breast cancer or other diseases, like, there's a very, very much a focus on the maternal genetics, the maternal side of the family. But this is both sides. Right? You said men and women have this gene.

Dr Marlana Fejzo: [00:29:02] Yeah. So it can equally come from your father's side as your mother's side. And then you wouldn't see it because your father doesn't get pregnant, so you'll say, I don't have it, but, yea.

Sarah Trott: [00:29:15] I mean, is there hope for people who might have pretty severe morning sickness or some degree in their first pregnancy? Can it be better in their second pregnancy? Is there a chance that it's not as bad?

Dr Marlana Fejzo: [00:29:28] So that's something that we recently got the first scientific hint on why that happens sometimes. So people that have that mutation where they

make too low *gdf15* before pregnancy if their baby inherits that mutation from them, so they are at a higher risk of getting it. The mother's at a higher risk of getting it overall in any pregnancy. Because she's making too little prior to pregnancy. So she's going to be hypersensitive to that hormone. But if her baby also inherits that lowering mutation, the hormone lowering mutation, then the baby is likely to produce less. And so the mother is less likely to get hyperemesis because it's this sort of interplay between her levels before and the levels produced by the fetus during. And so the genetics of the baby also play a role here.

Sarah Trott: [00:30:37] That is so fascinating because earlier we said the word placenta, but it's the placenta and it's the fetus or the baby also that's influencing what the placenta is producing. Am I getting it? Yeah.

Dr Marlana Fejzo: [00:30:49] I guess I should have said placenta, but the placenta I'm talking about the fetal part of the placenta. So the the the fetal genes are what go off and differentiate and become the placenta then. So yeah. So it's.

Sarah Trott: [00:31:06] Yes. Yeah. Okay. Got it. Related. So I know we're talking about like vision and things that are well, on their way, but maybe sometime in the future. In the meantime, like, what can women and pregnant people do if they have nausea? like I've heard I've heard about Unisom and B6 and other remedies. Is there anything that you would put stock in?

Dr Marlana Fejzo: [00:31:32] Yeah. So I think Unisom and B6 are almost like a placebo for people with hyperemesis. I think they probably do help people with normal morning sickness a little bit. They really help you to fall asleep better. And when you fall asleep better, you're going to have a better general well-being. You're going to be able to deal with anything that's bothering you better. Right? So I think that's sort of more how they work in my opinion. which is not that helpful when you're already at the level of hyperemesis. So they may help a little because they help you to sleep through the nausea a little better, but they're not going to really help you during the day as much if you have hyperemesis.

Dr Marlana Fejzo: [00:32:15] So there are stronger medications that you can take if you have a more severe condition. They are the most effective one in our data set is ondansetron or Zofran. And you really need to take it regularly. Don't take it as needed. Take it regularly. And then you're more likely to have have good effects from taking or beneficial effects, but it's not necessarily going to take, none of these treatments are going to, to get rid of your nausea completely, but they can help make sure that you're hydrated.

Dr Marlana Fejzo: [00:32:59] I always suggest if you can't take your prenatal vitamins, which most people who have hyperemesis cannot, to try to eat something that's fortified with vitamins, usually something that's not cooked like a dry fortified cereal. If you can eat a little bit of cereal, you're going to be able to get some vitamins from that. Or pop tarts. Anything that you can tolerate that is fortified is better than no vitamins at all.

Dr Marlana Fejzo: [00:32:59] I also think people with hyperemesis or more severe nausea, they need support. So surround yourself with support and ask for help. A lot of times, people with hyperemesis or more severe nausea can't go in the kitchen and cook because the smells make them sicker. So try, it's better to get help than to go down this downward spiral and then be totally incapacitated. If you can.

Dr Marlana Fejzo: [00:34:02] I also work with the Hyperemesis Education and Research Foundation, and they have incredible resources there for doctors and for patients and families of patients. So I definitely recommend visiting their website if you think you have hyperemesis and getting help from them. they have also support groups with the psychologists. So you can meet other people online that are going through it at the same time as you, because misery loves company sometimes. So that can be really helpful for some people. and yeah, just they have lots of resources available. They have algorithms that you can give your doctor if you think your doctor is not educated on this, which happens quite often, unfortunately. so definitely print out those resources and give them to your doctor. The algorithm for how to treat there's a help score to that enables you to test your level and see if it's changing as you try different medications. So probably more information than you wanted.

Sarah Trott: [00:35:15] It's perfect. we'll put links to the resources that you've mentioned that are digital resources into our show notes. So anyone who's listening can go and click on those links and get access right away.

Sarah Trott: [00:35:25] No, it's It's incredibly helpful especially to know that there are there are some remedies. There's no silver bullet, is what I'm hearing, obviously. But you know, just getting some rest helps.

Sarah Trott: [00:35:36] Your psychological support point is very interesting because it's not just physical. It is going to be something that's mental and emotional as well. And so having support groups is just hugely helpful. It's something we've talked about a lot on the Fourth Trimester Podcast, actually, as it relates to parenthood and people relating to other people going through the same thing. I mean, just the transition to parenthood is a lot, and it's nice to have peers who you can just you can meet with and talk with. I mean, there's talking is the number one thing parents need, according to some people have been in this space for a really long time. Some of the founders of Postpartum Support International have said that. So that's just a really, really good point that I like.

Sarah Trott: [00:36:27] And I just want to ask you the question: What would you advise women and pregnant people to say if they go to a medical professional and they say that they're sick and they're dismissed, they're dismissed and told, yeah, no, this is just in your head.

Dr Marlena Fejzo: [00:36:44] I mean, tell them that it's not true and that you can arm them with information. Now you can go to the HER foundation and print out the resources. There are links to my recent papers. You know, you can tell them that the paper was published in the top journal scientific journal nature, on the cause of the disease, and that they need to really update their education to to know what is really happening.

Dr Marlena Fejzo: [00:37:16] And if they still are giving getting pushback, then they need to change doctors. Unfortunately, some doctors have difficulty with new concepts, unfortunately. So if you unfortunately run into one of those, then and you try and they're

not willing to learn, then find a new doctor. And the HER Foundation also has what we call hg friendly doctors. So they have recommendations from patients all over the world that who've had doctors that they've liked and doctors that they didn't like. And so sometimes you can find someone in your area through that resource. And then of course we have our clinics. So we have there's it's only in New Jersey. But if you live near there, visit that one in Red Bank or we'll be opening one in New York and one in Philly in the fall.

Sarah Trott: [00:38:27] Okay, we'll put the link down there. So if someone is in the area, they can find the clinic and they can find those that list of doctors. That's perfect.

Sarah Trott: [00:38:36] And so, what's next for you in your research?

Dr Marlana Fejzo: [00:38:43] So I am full steam ahead in many, many directions. I'm very busy. Like I said, I've got the clinics opening. And I'm working with a company that's hopefully going to be going into testing the drug in patients. So those are two things. And then I'm also doing a very large genetic study of over 10,000 women around the world who have had hyperemesis to identify more genes involved. So the greatest risk factor is the gene that codes for that hormone that I said. But there are other genes involved that we found. And so we are working on those to try to figure out what else is involved to understand the biology better.

Dr Marlana Fejzo: [00:39:36] And so black women are more likely to get hyperemesis than white women and more likely to be hospitalized and also to have multiple emergency room visits. And so we are also trying to figure out why that is. Is it based on the genetics or are they just being dismissed more or a combination of both? And are their hormone levels different? So we're working on that as well.

Sarah Trott: [00:40:06] Okay. That's a lot that you've got going on. It's really exciting work that you're doing. Tell us, are there any final thoughts that you have for our listeners as it relates to this topic? And, and as it relates to the fourth trimester and beyond?

Dr Marlana Fejzo: [00:40:24] Just one thing that I always try to remind people, because it's not routine care, it's a rare complication from hyperemesis where patients are not getting enough vitamin B1. So doctors, often they know that they're supposed to give B6, but they don't know about vitamin B1. And that gets depleted rapidly in pregnancy and can cause a rare swelling of the brain that can lead to brain damage. And it's very rare. So I don't want to scare people, but it keeps happening, and it's so avoidable just by getting your B1. So if you're not able to get enough B1 from meat or other foods that have it and you're, you're experiencing severe vomiting and weight loss, talk to your doctor about getting some other kind of supplement for it. Or even you can get an injection just to prevent that complication, which I really hate to see reports of it still happening all over the country, in the world still, because it's so avoidable. So yeah.

Sarah Trott: [00:41:37] Avoidable and lesser known. Yeah, that's really valuable life saving information. And then any thoughts, any final thoughts you want to share on just what's happening in this next generation of students who you're teaching, what they're thinking about. and do we have enough women scientists?

Dr Marlana Fejzo: [00:41:56] So we definitely need more women scientists. I'm getting up there in years and and hoping to get the next generation on board to continue this work. this hyperemesis is because I had it and had such a terrible experience. Of course, it's my passion. But there are many other diseases of women that are also under-researched where we don't know the cause and don't have good medications. And unfortunately, men are less interested in funding research on this and researching it and finding the answers. And so we need other passionate young women scientists out there to come on board, and I'm happy to talk to them.

Sarah Trott: [00:42:43] All right, listeners, if you're interested in joining Marlana in her work now you know about her and you know where to find her. This has been such a pleasure. Thank you so much for sharing your time with us and this information about the important work that you're doing.

Dr Marlana Fejzo: [00:42:59] Thank you for having me.

Sarah Trott: You can also subscribe to this podcast in order to hear more from us. [Click here for Apple](#) and [click here for Spotify](#). Thank you for listening everyone and I hope you'll join us next time on the Fourth Trimester. The theme music on this podcast was created by Sean Trott. Hear more at <https://soundcloud.com/seantrott>. Special thanks to my true loves: my husband Ben, daughter Penelope, and baby girl Evelyn. Don't forget to share the Fourth Trimester Podcast with any new and expecting parents. I'm Sarah Trott. Goodbye for now.