

Impact of Race & Ethnicity on Responses to Folic Acid Dosing

Devika Maulik MD shares her translational research as it relates to folic acid and different responses to dosing among women of various races and ethnicities. She is using the information gathered to create recommended guidelines for folic acid dosing. She discusses current literature on this topic, as well as her studies in this area.



Featured Speaker:

Devika Maulik, MD

OB/Gyn-Maternal & Fetal Medicine Specialist at the Fetal Health Center, Children's Mercy.

[Learn more about Devika Maulik, MD](https://www.childrensmercy.org/profiles/devika-maulik/)

[\(https://www.childrensmercy.org/profiles/devika-maulik/\)](https://www.childrensmercy.org/profiles/devika-maulik/)

Transcription:

Melanie Cole (Host): Welcome to Transformational Pediatrics with Children's Mercy, Kansas City. I'm Melanie Cole, and I invite you to listen as we examine the impact of race and ethnicity on responses to folic acid dosing. Joining me is Dr. Devika Maulik. She's an Obstetrician Gynecologist and a Maternal Fetal Medicine Specialist at the Fetal Health Center Children's Mercy, Kansas City. Dr. Maulik, it's a pleasure to have you with us today. This is a really interesting topic. Tell us a little bit about folic acid, it's evolution, and what's your interest in this area of study?

Devika Maulik, MD (Guest): Folic acid is the only known prophylaxis that we have against congenital anomalies in fetuses and babies. And it's such a unique also prophylaxis because it's dietary, it's nutritional. And as we have learned over time, over the past few decades, that it plays such a critical role in fetal development, there has been such a tremendous cooperation between the medical community and governments at large, to try to make sure that reproductive age women have enough folic acid and folates it's in their system to really mitigate the risk of congenital anomalies, specifically neural tube defects.

Host: Isn't it interesting how it became one of the first vitamins to make it into the mainstream, still there today.

Dr. Maulik: Yes. And it's funny though you'll be surprised even with all the effort to make sure that women have enough folic acid and folates in their system, a lot of women that I encounter, they just know they have to take their prenatal vitamins and they don't really know the importance of that in terms of making sure that it protects their pregnancy against congenital anomalies.

Host: Well aside from congenital anomalies, tell us about some of the complications of sub-optimal folate status, because we've heard in some of the studies, even depression is one of them.

Dr. Maulik: That's interesting. Our focus usually with pregnancy is mostly congenital anomalies. There is some interest in late pregnancy complications with folic acid and that includes preeclampsia and preterm birth. Some of the data with preeclampsia hasn't really quite flushed out, but there continues to

be interest with folic acid in terms of mitigating the risk of preterm birth.

I think there was a study, a huge study of the Faster trial that they did a subgroup analysis and found that women who were taking their prenatal vitamins at least three months before conception had a far lower risk of preterm birth. And there continues to be studies even as recently as last year, and this year that is exploring, how taking a supplement anytime during the pregnancy can actually reduce your risk of preterm birth. There's also was a study in John Hopkins, I think had performed, that found that women who had taken folic acid during their pregnancy, that their children later on in life, they did a longitudinal study where a lot less likely to have metabolic disorders.

Host: Isn't that interesting. So, we know Dr. Maulik, there are numerous factors that contribute to the health disparities in this country. We've talked about them and really, among these major ethnic and racial groups, this particular one. Is it a big one? Tell us about that.

Dr. Maulik: So, I got interested in this because I wanted to look at folate status just in normal pregnancy, in our community in Kansas City. And we have a very good a diverse patient population here. And I had noticed when I looked at just collecting the data, that there was a differential response if you compare moms who were supplementing to moms who were not supplementing. Racially, there was actually quite a different response that we found that in the non-Hispanic black population, among those mothers, that was less of a difference in terms of folate status. You didn't see as much of an increase among the moms who supplemented versus those who did not. My research team and I, we went back through the literature and actually found that this is consistent with a lot of findings that have been found since a lot of folic acid programs were initiated in the nineties.

So in 1998, the US government, when they found that it plays such a critical role in decreasing the risk of neural tube defects and other congenital anomalies lot of governments, including the US implemented a program to actually fortify the grain supply. So, that everybody, not just women, everybody got plenty of folic acid and they've always sort of tracked how people have responded.

And one of the first studies the CDC found was that there was less of an increase in improvement among the black mothers. It was very interesting. The other thing is that here's the paradoxical thing is that in the black population, you also have the lowest risk of neural tube defects. So, having low folate status usually means you have a higher risk of neural tube defects, but you're actually finding in the group that responds less to supplementation that has a lower folate status, they actually weirdly have the lowest risk of neural tube defects.

Host: That's so interesting. Do we know if the differences in these ethnic and racial groups is due to variations in dietary, as you say, cultural food, lack of access? What do we know about this? And tell us about your studies.

Dr. Maulik: So, there's a lot of speculation that there are a lot of studies that have shown that prenatal vitamin use, maybe a little bit lower among black mothers, but I don't think that really accounts for a lot of the differences fully, because there was actually a really fascinating study. It was a feeding study done where they took 14 white women, 14 Latino women and 14 black women. And they actually controlled what they ate. They actually deprived them all of folic acid and folates, and then introduced it in different dosing into their diet. And they actually found that when they reintroduced the folic acid and

folates into their diet, that in the Latina and white population, you saw a huge increase, but you didn't see as much of an increase in the black population and the black cohort.

And so they concluded from that study, that race is an independent determinant of full weight status. And have been so interested, so I did publish a study that looked at the cohort of pregnant woman did find that this also translated into cord blood status, that whatever you saw on the mother if you saw lower folate status in the mother, you tended to see a lower folate status in cord blood, but also the same response to supplementation you also saw that in the cord blood as well. So, I'm actually doing a study right now, that's community-based recruitment looking at a larger cohort of non-pregnant, but reproductive age women and looking at their diet. I do a dietary questionnaire that actually takes like 45 minutes to complete. And I get a history look at socioeconomic sort of food access as well. And also get a blood sample and right now we're in the middle of recruitment we're two thirds completed, but the purpose of the study is to answer a lot of the questions that you just asked is how much of this is because of socioeconomic, access to food, access to good nutrition and how much of this is just sort of intrinsic to the physiology of the moms. And I don't think we really know that answer to that question, but I'm hoping to figure that out.

Host: That's fascinating. What a really interesting area of expertise in study Dr. Maulik. Are there current guidelines right now for folic acid dosing? And how do you hope your study findings can help guide dosing recommendations?

Dr. Maulik: So, the current recommendations, there is a standard guideline, that's existed since we sort of figured out that folic acid plays such a critical role in fetal development. It usually what we say is you need to take 400 micrograms, every mom no matter what their risk profile is. If they're higher risk, that means that they have a history of a child with neural tube defect, cleft lip palette, if they have a history of seizures on medications then we increase that to four milligrams and it's critical though, that they take it before they get pregnant because the neural tube closes before they even realize that they are pregnant. That guideline has not really changed.

Most prenatal vitamins have about 800 micrograms because there has been studies that show that there is some benefit for example, the study that I talked about, the feeding study, they looked at 400 micrograms and then they increased it up to 800. And actually when you increased it to 800, the response, the differences in response to that supplementation was much more pronounced.

So, you saw a bigger difference between the black cohort versus the white and the Latino cohort. What my study is trying to do is trying to figure out that maybe we have a sort of a one size fits all approach to supplementation and medicine in general, and that maybe we need to figure out a more personalized approach to medicine or more population specific approach. With black mothers, I take care of population where I have a lot of black mothers that I take care of. And many of them don't know that neural tube defects can be prevented with prenatal vitamin use, but I also don't know that it's as relevant to their community given they have such a low incidence of it.

And I sort of wonder that we should be exploring the other potential benefits of folic acid that is more relevant to them such as preterm birth or even prevention of metabolic disease in their offspring because I think that would definitely resonate more in terms of promoting supplementation. But the other thing is that it's possible that folic acid is not the best thing supplement for them or the best

approach to supplementation for them as well. In my research, I really hope to develop partnership with the community in figuring out the answers to these questions.

Host: Interesting questions, all of them and really important. So, what would you like the biggest takeaway for pediatricians to know about folic acid dosing recommendations as they're meeting their patients and advising their patients, for other obstetricians, gynecologists, what would you like them to know?

Dr. Maulik: I'd like to know that even though it's probably one of the most effective things that we can recommend mothers to do to promote health in their fetus and in their offspring later on, there's still so many questions we've yet to answer with it. And in the future, we hope that we can perhaps tailor recommendations and supplementation in a much more subtle, much more specific way. But I would say that I still think it's a very effective prophylaxis, but there's still a lot of questions that we need to answer, and we to know that even though it's works really well, it could work even better if we answer those questions.

Host: As we wrap up, are you doing any additional research in the area of race?

Dr. Maulik: I do a lot of work with the community. And I have to say I've learned a lot as much as like a researcher, will come in, I think the community has been so generous in trying to open up to me and teaching me and I consider them a partner in all my research endeavors, an equal collaborator.

I'm doing a lot of work in trying to figure out prenatal care models that might work better for my population that I take care of here in Kansas City. And then generally speaking, whenever now, because of my work in this field whenever now I approach medication and our approach different interventions, I always wonder, is it equally effective in the black maternal population? Some of my work is now starting to turn into that, pivot and make sure that a lot of the things that we do in obstetrics remains relevant in the patient population that I take care of.

Host: Thank you so much, Dr. Maulik for joining us today. What a fascinating episode this was. So informative and please join us again and update us as you learn more. Thanks so much again for joining us. This has been Transformational Pediatrics with Children's Mercy, Kansas City. To refer your patient, or for more information, please visit childrensmercy.org to get connected with one of our providers. Please also remember to subscribe, rate and review this podcast and all the other Children's Mercy Podcasts. I'm Melanie Cole.

powered by:  doctor podcasting (<http://doctorpodcasting.com>)