Folic Acid – Is More Really Better?

It was late on a Tuesday when a chat came in from Dr. Rodriguez. “My patient is taking a medication for epilepsy. She is planning a pregnancy and I’ve seen from some sources she may need to take more folic acid to help prevent birth defects. Does she need to be on a higher dose?” As teratogen information specialists, we receive many inquiries regarding folic acid; and it was understandable why this healthcare provider was confused as the guidance isn’t exactly straightforward.

What is folic acid?

Folic acid is the lab made form of folate. Folate is a B9 vitamin. Folate and folic acid help the body create new cells and can lower the chance of having a child with a class of birth defects called neural tube defects, which are problems with the brain and spinal cord. The neural tube forms very early in pregnancy (around 4 to 6 weeks after the first day of the last menstrual period), so it’s important that any woman who could become pregnant get enough folic acid at least one month ***BEFORE*** she gets pregnant. In the United States many of our foods, such as breakfast cereal, bread, pasta, and rice are fortified with folic acid, which meant the vitamin has been added to the food. According to the Centers for Disease Control and Prevention (CDC), folic acid fortification programs have led to a 35% decrease in the rate of neural tube defects! We also get folate, which is the naturally occurring form of Vitamin B9, from foods like dark leafy greens, beans, citrus fruits, and nuts. However, only about 50% of this form is bioavailable (able to be absorbed and used by the body) so additional intake, in the form of a supplement, is recommended by organizations like the CDC and National Institutes of Health (NIH).

How much is needed?

The CDC recommends that all women of reproductive age get at least 400 mcg (0.4 mg) of folic acid each day. Once pregnant, organizations like The NIH and the United States Preventative Services Task Force (USPSTF) recommend that women who are pregnant get 600 to 800 mcg (0.6 to 0.8 mg) of folic acid per day. This amount can usually be met by taking an over-the-counter prenatal vitamin; a higher amount is not recommended for most pregnant women.

Women who have previously had a pregnancy affected by a neural tube defect (NTD) should take a higher dose of folic acid if they are planning to become pregnant again. The CDC and the American College of Obstetricians and Gynecologists (ACOG) recommends 4,000 mcg (4 mg) per day for these individuals. This higher dose should be started at least one month before becoming pregnant and should be continued through the first three months of pregnancy.

So what about Dr. Rodriguez’s patient who was on an anti-epileptic drug (AED) for her seizure disorder? Many, but not all, medications in the AED class are known as “folic acid antagonists.” This means that they can interfere with how the body absorbs and uses this important vitamin. If someone becomes pregnant while taking a folic acid antagonist, they may have lower levels of folic acid in their body and their pregnancy could be at higher risk of neural tube defects. That said, there is no great research that shows that taking extra folic acid would lower the risk of NTDs for women taking folic acid antagonists. So, should a woman taking an AED stick with the 400 mcg per day that is already recommended for everyone, or take more just in case it could be helpful?

Let’s look at the current professional recommendations:

- The American Academy of Neurology and the American Epilepsy Society guidelines state that all women of childbearing age, with or without epilepsy, should be supplemented with at least 400 mcg (0.4 mg) of folic acid per day prior to conception and during pregnancy. They go on to say there is not enough data to know if taking folic acid at doses higher than 400 mcg offer greater protective benefits for women on AEDs.

- The American College of Obstetricians and Gynecologists (ACOG) recommends 4000 mcg (4 mg) of folic acid per day for individuals at increased risk of having a baby with a NTD, which includes women with seizure disorders.

- The Centers for Disease Control and Prevention (CDC) only recommends a higher dose of folic acid for those with a history of a pregnancy affected by a NTD.

- The U.S. Department of Health and Human Services (Office of Women's Health) recommends talking to your doctor to determine the right dose of folic acid if you are taking a medication for epilepsy.

Clear as mud, right? The current consensus seems to be that there is no consensus. Some groups recommend a higher dose while others do not. In situations like this where there is no clear consensus from the professional groups, it comes down to weighing the risks vs. benefits. The risks include the fact that higher doses of folic acid are not well studied in pregnancy, could mask a B-12 deficiency, and may actually make some medications less effective. The benefits of taking more are theoretical (not proven). A higher dose of folic acid ***might*** be protective in preventing birth defects while on a folic acid antagonist, but there is not enough research to know if this is true. Ultimately, much more data will be needed to come up with clear guidelines for women with epilepsy.

Because Dr. Rodriguez's patient was on carbamazepine, a folic acid antagonist that is associated with a higher chance for neural tube defects, she decided that she would have a thorough discussion of the risk vs. benefits of taking a higher dose of folic acid with her patient before she became pregnant. Dr. Rodriguez was glad she hadn't missed any overarching recommendations for women who need to take medication to control their seizure disorders during pregnancy. She ended her chat by saying: "It can be a challenge to keep up to date with all the recommendations. I'm so glad to have access to MotherToBaby to be able to ask questions like this."

MotherToBaby specialists are always happy to review the latest data and professional recommendations with healthcare providers and patients alike. If you have questions about folic acid, epilepsy medication, or any other exposures in pregnancy or lactation, please feel free to get in touch.

Questions? Call 866.626.6847 | Text 855.999.3525 | Email or Chat at MotherToBaby.org.

Disclaimer: MotherToBaby Fact Sheets are meant for general information purposes and should not replace the advice of your health care provider. MotherToBaby is a service of the non-profit Organization of Teratology Information Specialists (OTIS). Copyright by OTIS, July 20, 2022.