Diabetes and Pregnancy: The Not-So-Sweet Story

By Patricia Markland Cole, MPH, MotherToBaby Massachusetts

November is Diabetes Awareness Month and both of my parents in recent years have been diagnosed with Type 2 diabetes (a preventable form of diabetes where the body can no longer control the amount of sugar in the blood), so it's a particularly relatable month for me. Because "the apple does not fall far from the tree" the discussion with my doctor has started to change – Now I am at risk., Therefore, if I become pregnant, a family history of diabetes would put me at increased risk of developing diabetes during pregnancy (called gestational diabetes mellitus, or GDM). I have to think more about living a healthy lifestyle to lower my risk.

Here's what we know about GDM:

- GDM is still a common public health problem and could impact 1 in 10 women. It has been considered a national health priority.
- GDM poses an elevated chance for pregnancy complications such as:
    - Preeclampsia (high blood pressure, swelling and protein in the urine)
    - Preterm birth (birth before 37 weeks of pregnancy)
    - C-sections
    - Development of Type 2 Diabetes (35-70% of women who had GDM will develop Type 2 Diabetes 10 to 15 years after pregnancy; 15-25% will develop it within 1 to 2 years after pregnancy)
    - Renal disease (problems with kidney function)
    - Cardiovascular Disease (problem with the heart and blood flow)
- GDM also poses increased short- and long-term risks for the infant, including:
    - Increasing the chance of complications at birth
    - Difficulty breathing
    - Large in birth size and weight (over 10 pounds)
    - Increased chance of developing Type 2 diabetes
    - Childhood Obesity

There are quite a few risk factors for GDM that cannot be changed such as age, family history of diabetes, and race; those over age 35, those with a family history of diabetes, and non-whites are at higher risk. However, some risk factors are changeable like weight, diet and exercise. The funny or peculiar thing about diabetes and pregnancy is that while there are many reports of how beneficial diet, exercise and maintaining a healthy weight are in reducing general health risks, the studies that specifically examined the effectiveness of reducing the rate of GDM during pregnancy through lifestyle changes versus routine or standard care have been mixed. Sometimes the results showed that it did reduce the rate of GDM, but other times it did not. Surprising, right? Here are some of those mixed results:

For women who did not have the typical risk factors, researchers studying diet and exercise interventions did not always find a difference in the rate of GDM between comparison groups. It has been stated that the risk of GDM was four to eight times higher in women who were overweight or obese. However, methods to reduce excessive weight gain during pregnancy found no significant change in GDM and increased physical activity had only a small effect. However not all of the results were mixed; some studies actually had strong results for other health benefits. For example, one study showed a 50% reduction in the rate of Type 2 diabetes diagnosis for women who had been previously diagnosed with GDM when lifestyle changes were introduced, while another study found a 95% reduced risk for gestational hypertension and a 90% reduction in preeclampsia for pregnant women with obesity. Why such mixed results? Some fault study design flaws. For example, the studies were different in the methods used to screen and

diagnose GDM, the duration and time the study was conducted and the differences among the women that participated, just to name a few.

SO…Can gestational diabetes be prevented?
According to the author of one research article I read: "The answer remains optimistic." Do not let the mixed results give you a reason to not be the healthiest you can before going into pregnancy. There is overwhelming proof that a healthy weight, physical activity and a healthy diet are important to one's overall health and can reduce your chance of developing sickness and disease. The earlier that one starts living a healthy lifestyle, the more there can be an impact in reducing the rates for GDM and its associated risks for childhood obesity and Type 2 diabetes. Surprisingly, many women in the studies were not asked about their diets during pregnancy. It will take a multi-level approach and better study designs to come to some better conclusions. I am sure that once research designs and methods are tweaked, we'll have a much better idea of how GDM can be prevented or reduced because there will be more proof in the pudding … and how sweet that will be!

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About MotherToBaby

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Diabetes and Pregnancy: The Not-So-Sweet Story

By Jennifer Namazy, MD,
Allergist & Immunologist, MotherToBaby Pregnancy Studies Asthma Study Consultant

My first patient of the day was an urgent visit for a woman with shortness of breath. Her name was Heather and she had found out she was pregnant about two months ago. She was thrilled since she had been trying to have a baby for about two years. Once she found out she was pregnant she did three things: she shared the wonderful news with family, she began plans on her new nursery and she stopped all of her asthma medications. She is in her 30s and prior to her pregnancy had been on no medications other than those needed to control the asthma she has had since she was a toddler. These medications include an inhaled corticosteroid, a long acting bronchodilator and rescue medicine in the form of a short acting bronchodilator. She felt that since she was lucky to have become pregnant, she did not want to harm the tiny baby now growing inside her – thus her decision to stop taking her asthma medications. So while she started plans on bringing this baby into the world, the inflammation in her lungs began to go unchecked. At first, she noticed that when she would go to the gym it was harder for her to catch her breath. Then she noticed she was waking up at night feeling like an elephant was sitting on her chest. She attributed the symptoms to being "out of shape" and "anxiety" about the new baby. Finally, while she was having lunch with some friends, someone told a funny story, and her laugh quickly became a wheezy cough. That's when she ended up in my office.

Asthma is one of the most common serious medical problems to complicate pregnancy. We know that asthma can get better, get worse or stay the same during pregnancy. Uncontrolled asthma may cause problems for both mom and baby. Having flares of asthma during pregnancy can lead to low oxygen levels in mom which translates to low oxygen levels for baby. This may lead to problems with baby's growth.

As we embark on May's National Asthma and Allergy Awareness Month, I thought it'd be a perfect time to go over some critical reminders if you have asthma and find out you're pregnant. Here are some things you should do to keep you and your baby healthy:

Don't stop your asthma medications – Managing asthma during pregnancy is not different than before you were pregnant. The majority of commonly used medications such as those used by Heather that are described above, which include inhaled corticosteroids, are generally safe. If you have questions about the safety of the medications you are taking, call your doctor or contact MotherToBaby.

Keep those appointments – Since asthma can change during pregnancy, it is important to visit with your doctor on

a monthly basis to assess your asthma. Waiting until you have symptoms can often be too late. Lung function testing can detect small changes in airway blockage that can then be treated right away.

Join an Asthma and Pregnancy study – Fewer than 10% of all medications have enough information to determine their safety for use in pregnancy. You can help change that by joining a pregnancy study! These studies provide more safety information on commonly used medications during pregnancy, and they do not require you to change your medications. To learn more, visit MotherToBaby's Asthma and Pregnancy Study page.

Don't forget your allergies – While having bad allergies during pregnancy has not been shown to have an effect on the baby, it can affect your sleep and general quality of life. Avoiding those triggers, such as: dust, pet dander, pollens, etc. and using allergy medications when needed, can make for a less stuffy, and more pleasant, pregnancy.

Dr. Jennifer Namazy is an allergist and immunologist, specializing in treating asthma and other respiratory conditions in children, adults and pregnant women. She practices at Scripps Clinic Medical Group in La Jolla, CA. She currently serves as an expert consultant for MotherToBaby's asthma in pregnancy studies.

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Diabetes and Pregnancy: The Not-So-Sweet Story

By Patricia Markland Cole, MPH, MotherToBaby Massachusetts

During my work at MotherToBaby, I have received calls from pregnant woman who want to know what can they safely take to sleep? Usually they are looking at natural remedies like melatonin for information. For some who have been on medications like Ambien before they were pregnant, they now wonder if they can use it because they are having a hard time catching those Zzzz's. Even though I am not pregnant, I am sure all of us can relate to a night where we wake up and cannot fall back to sleep. We slowly see the time ticking by 10 min, 30 min, 1 hr, 2hrs. It can be so frustrating, especially if you look over at your partner in a state of blissful slumber as you toss back and forth on the bed.

Many women have come to accept a lack of sleep or quality of sleep in pregnancy. In the early part of pregnancy, sleep is interrupted by nausea, vomiting, back pain and an increased need to urinate/pee. In the middle of pregnancy, women are uncomfortable in bed because the baby is moving and kicking, and then there is heartburn, cramps or tingling in the legs.

By the latter part of pregnancy, it is reported that over 97% of pregnant women cannot get a decent night's sleep. They are waking up and staying awake for longer periods of time. I do recall how surprised I was when I sent an email to one of my colleagues at MothertoBaby in her third trimester of pregnancy, at the crack of dawn her time (I was on the East Coast, she was on the West). I was so surprised when she responded to my email and I knew it was way too early for her to be at the office. When I asked, she stated, she was up and couldn't sleep and decided to make the most of her time. While many women and clinicians have come to accept this as just a part of pregnancy, the data is starting to show that we need to pay more attention to how pregnant women are sleeping during pregnancy.

What is Insomnia?
Insomnia is one of 3 common sleep disorders during pregnancy. Insomnia includes difficulty falling asleep or staying asleep, waking up very early in the morning, waking up not feeling rested or a combination of these symptoms. Many pregnant women do not view insomnia as a disorder or a problem in their pregnancy, but when it starts to impact how you function during the day especially when it is accompanied with sleepiness, lack of energy, increased irritability, agitation and stress, it should be considered more carefully especially if insomnia starts to occur more regularly and last longer. Having a good night's rest is important for the well-being of the mother and child.

The concern with persistent insomnia is that it could increase the chance of hypertension and diabetes, which is just as concerning in people who aren't pregnant too. Another concern is that people who suffer from insomnia have higher levels of substances that increase inflammation in the body (proinflammatory cytokines). These higher levels of cytokines are also seen in women who have experienced preterm birth, postpartum depression and other pregnancy complications. While no association with insomnia and adverse pregnancy effects have been made, researchers have started to take a closer look at the effects of insomnia due to some results. For instance one report observed a higher rate of preterm birth for pregnant women that were sleeping less than 5 hours a night in the latter part of pregnancy. And there were other observations that women who were sleeping less than 5 hours a night in the last month of pregnancy had longer labors and were more likely to have C-sections.

In light of these observations, health care providers are being asked to screen their patients for sleep disorders during pregnancy. The majority of pregnant women consider their insomnia to be mild but in some cases there could be more that is going on like undiagnosed depression or anxiety that can be responsible for the insomnia.

So what's a tired mom-to-be to do?
Expectant mothers can do their part by being more proactive. It is suggested that expectant moms keep a daily sleep diary which would include your bedtime routine, how long it takes you to fall asleep, if you have difficulty falling back to sleep after waking up, how long you are awake at night and if you feel rested. Talk with your health care provider even if they have not brought it up with you. Sometimes changes in behavior can help, called 'sleep hygiene' which involves things like avoiding stimulants (caffeine), not eating late at night, getting exposure to adequate sunlight and using your bed for only sleeping (not watching TV). Other actions that pregnant women can try includes acupuncture, massage, yoga and exercise. In some cases a referral to a sleep specialist may be needed and if all else fails some women may require medications.

Sometimes moms start looking at a natural remedy like melatonin. Melatonin, a hormone that is produced by the pineal gland, is often taken as a supplement to help with sleep. Melatonin is available in two forms, either as a synthetic product or a product that is from animals, usually beef cattle. Most health care professionals recommend avoiding the melatonin from animals due to a very small chance of contamination or viral transmission. Also, melatonin is a supplement and not a medication. That means it's not regulated by the Food and Drug Administration. Some studies have suggested avoiding use of melatonin during pregnancy due to a concern that the exposure might interfere with mom's or baby's sleep cycles.

Others want to know about prescription medications, like Ambien (zolpidem). Ambien has not been shown to increase the risk for birth defects when used in the first trimester of pregnancy. Since Ambien is a sedative hypnotic type of medicine, and has some features similar to benzodiazepines, it is thought that when used near the time of delivery, there may be temporary withdrawal-like symptoms in the baby.

Overall it is important to develop a plan with your health care provider and if a medication is needed, you can call MothertoBaby and we can provide information on medications suggested for use in pregnancy. Remember do not take sleeping lightly during your pregnancy; as one commentator put it, you are "sleeping for two." You, your baby and even your partner will appreciate your effort.

Patricia Cole, MPH, is the Program Coordinator for MotherToBaby Massachusetts. She obtained her Bachelor's degree in Biology from Simmons College in Boston and her MPH in Maternal and Child Health from Boston University School of Public Health. She has been the serving the families of New England as a teratogen counselor since 2001 and provides oversight for the day-to-day functions and outreach of the program. She has also provides education to graduate students and other professionals.

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Diabetes and Pregnancy: The Not-So-Sweet Story

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By Neely Cessac, Teratogen Information Specialist, MotherToBaby

The holidays are full of family, fun, and enjoyment – and the season is wonderful EVERY, SINGLE, DAY, right?! WRONG. Every year many pregnant women (as well as the general public) become so stressed and worried around this time. And rightly so…not only do pregnant moms have regular holiday stress, but they'll soon become moms! M-O-M-S! Holy cow. An overwhelming concept, to say the least, especially with everyone telling you what you can (or should) do and what you can't (or shouldn't) do during pregnancy. As a birth defects information specialist, I'm starting to get a ton of questions surrounding stress from moms-to-be. I can relate…and I'm not even pregnant yet!

I always want everything to be perfect, from clean floors and ceiling fans, to wonderfully wrapped presents and delicious food. Luckily my mom is an expert at all of those things, so I asked my mom how she survived the holidays while she was pregnant with me. Between my teratology expertise (the study of exposures that cause birth defects) and her "mom-ology" expertise (the study of being awesome in general, but especially as a mom), we've put together a list of some key questions and answers to help you survive the holidays too!

Survival Q #1: How can I avoid becoming too stressed?

- How you breathe is important! Be sure to take deep breaths, in through your nose and out through your mouth, and relax.
- Realize you are not alone. Most pregnant women and women in general are feeling the same way you are. Talk

to others; it will help reduce your feelings of stress.
- Take a nap! Escape and take a quick cat nap when you are really stressed and tired.
- Light to moderate non-impact exercise is great too. Try walking, swimming or yoga.

Survival Q #2: How can I avoid becoming too fatigued?

- Don't be afraid to admit you are too tired to do some things. You cannot (and should not) be super woman during the holidays! Just say "no".
- Sleep, sleep, sleep! Try to get about eight hours of sleep each night.
- Have that morning cup of coffee or tea. Studies have shown that limited amounts of caffeine, 200-300 mg a day, have not been associated with any known increased risks for baby.

Survival Q #3: How can I avoid drinking alcohol?

- Don't be tempted to drink alcohol, as alcohol is known to be harmful for baby. Bring your own non-alcoholic beer or wine with you to the party.
- Want something bubbly to drink on New Year's Eve? Try a delicious non-alcoholic sparkling juice or cider.
- Make sure there is no alcohol in the drinks or desserts that your host/hostess is serving at the party. Don't be afraid to ask questions!

Survival Q #4: How can I avoid complications from overeating, such as gas and constipation?

- Eat more often, but eat smaller portions. With a baby on board, you do not have as much room in your tummy as you used to!
- When needed for gas, it is okay to take over-the-counter products such as Gas-X®.
- To avoid constipation, drink lots of fluids and eat foods high in fiber, such as apples and broccoli. If constipation continues to be a problem, use commercial stool softeners as needed.

Survival Q #5: If I become sick, which over-the-counter cold and flu medicines can I take?

- Look for products that contain acetaminophen, while avoiding products that contain ibuprofen or aspirin.
- If you have high blood pressure, try to avoid using products that contain pseudoephedrine or phenylephrine, which can slightly narrow the blood vessels and increase blood pressure. Consistent use of decongestants is not recommended during pregnancy for anyone.
- You can use over-the-counter cough medications such as Mucinex® and Robitussin®, without any known increased pregnancy risks.
- And you know what they say about an ounce of prevention…! Get a flu shot!
    - In the United States the flu shot has been given to pregnant women since the 1960s. Studies of thousands of women who have received the flu shot just before or during pregnancy have found no increased risk for birth defects or other problems.
    - The flu vaccine given by injection is recommended for all women planning to become pregnant or who already are pregnant (whether in their first, second, or third trimester) during the flu season.

If you have any questions, don't forget that you can call, email, or live chat with a MotherToBaby expert. And to make it even less stressful for you, you can now just send us a text with your question! We're trying to make it as easy as possible for you, Mom – you have enough to worry about! **Just text us at 855-999-3525.** We are here to help. Happy holidays and may you have a zen-like season!

Neely Cessac is a Teratogen Information Counselor at the North Texas affiliate of MotherToBaby. She has been with the service for over two years and loves working with pregnant moms!

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By Dr. Sarah Običan, OBGYN, MotherToBaby

It's noon. I just ran into my academic office to call back a few patients in between a packed schedule. I just spent my morning seeing 17 patients and gauging by my afternoon schedule, the day was not going to get much easier. I was new at my job as an OBGYN having joined the academic practice where I completed my residency. It was a busy practice, but I loved my job and I loved my patients. As I sat in my chair, I finally felt my feet again and realized they were hurting, but before I could kick off my heels, my cell phone rang. It was my IVF doctor.

By this time, my husband and I had been dealing with infertility for over a year and had decided to have tests done by one of my medical partners. She phoned to give me results of my testing…. As it turns out a hormone, called anti-mullerian, was low. It may have been in part a cause to our inability to conceive naturally. I could not muster a response to her. Instead – silence. A whole minute must have passed, after which all I said to my doctor was "I must be one of the 10%."

I was not alone.
According to a CDC survey from 2006 – 2010, more than ten percent of couples trying to conceive have infertility. It's a medical problem that impacts entire families, marriages and your work. The journey is long, time intensive, costly, emotionally heavy with so much joy and pain all wrapped up into a six week treatment cycle. It's not for the faint of heart.

Since the first IVF conceived child was born in 1978, things have changed. In fact, even in the 3 year period and 11 cycles I went through in my own life things have changed. We are learning so much about new technologies and improving outcomes. We're able to offer patients better risk assessments and counseling today.

Is IVF safe?
All things considered, assisted reproductive technologies (ART) are safe and the studies are proving it. Multiple studies have supported that IVF does not increase your risk of breast cancer or cancer overall. However, pregnancy conceived by ART are at increased risk of multiples, including monochorionic twins (when twins share the same placenta). These types of twins do carry increased risk of birth defects, preterm labor and delivery.
On average, women necessitating these medical interventions tend to be older and may have additional medical issues, all which impact the pregnancy.

For the baby, while we do know any risk of birth defects is low, some studies do show a small increased risk of overall birth defects, specifically heart defects, in IVF-conceived children, including a 2012 Australian study that looked at more than 6000 children conceived by using ART. It's hard to completely understand if the risk is due to the interventions itself or due to any underlying issues the higher-risk patients being studied carry.

The formation of a baby's heart is an exceptionally complex biological process. Because of this, it's not surprising that, of all birth defects, heart defects tend to be most common. Similarly, the infertile population and those who undergo ART have an increased risk of having a baby with a heart defect, specifically defects affecting the ventricular and atrial septum, as well as a complex birth defect called Tetralogy of Fallot. All women with an ART conceived pregnancy should have a detailed ultrasound between 18-22 weeks to evaluate fetal anatomy and a fetal echocardiogram to evaluate for heart defects. Folic acid supplementation is also important.

Drawbacks to the studies
Despite 60,000 infants being born in the U.S. using ART, the vast majority of studies investigating the associated risk with ART have studied a population which conceived and delivered outside of the U.S. Other limitations of the early studies include looking at relatively small numbers of patients. As a doctor, I hope more studies will be conducted examining U.S. pregnancies involving ART since we have such a diverse population. Studying IVF among our differing ethnicities, age and socioeconomic backgrounds will help doctors make even better recommendations to the couples trying exhaustively to start their families.

For now, just breathe…

I did. Chin up, support system intact, I kept forging ahead. With each failed IVF attempt along the way, my heart may have broken a little, but, at least the absolute risk of heart defects in the potential pregnancy remained small. Three years of trying and my son finally arrived. My heart is now full.

Sarah G. Obican, MD, is an OBGYN, Maternal Fetal Medicine specialist at the University of South Florida. She currently serves on MotherToBaby's Board of Directors. She's also a councilmember of MotherToBaby's sister society, the Teratology Society.

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