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Pre-Pregnancy Hormonal Contraception Use: A Potential Risk Factor for Development of Gestational Diabetes

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Abstract: ***Gestational diabetes is hyperglycemia that is first recognized during pregnancy. It can lead to a number of maternal and fetal complications. According to a 2014 analysis by the Centers for Disease Control and Prevention, the prevalence of gestational diabetes is as high as 9.2%. Recently, pre-pregnancy use of hormonal contraceptives is thought to be a potential risk factor for GDM beside the traditional risk factors like maternal older age, overweight/obesity, and family history of GDM etc. It has been found that, women who use hormonal contraceptives before they get pregnant may be 1.4 times more likely to suffer from gestational diabetes than women who do not use any method of birth control. As new and safe contraceptive methods are now available, physicians and other health staffs should guide women by educating, counseling and suggesting a proper method as a measure to avoid the risk for gestational diabetes in their future pregnancy.***

Keywords: Gestational diabetes, Pre-pregnancy hormonal contraception, Potential risk factor, prevalence of gestational diabetes, PRAMS survey

1. Introduction

Gestational diabetes is hyperglycemia that is first recognized during pregnancy [1]. It is caused when insulin receptors do not function properly. This is likely due to pregnancy-related factors such as the presence of human placental lactogen that interferes with susceptible insulin receptors. This in turn causes inappropriately elevated blood sugar levels [2]. According to
Control and Prevention, the prevalence of gestational diabetes is as high as 9.2% [3].

There is both fetal and maternal complications associated with GDM. It can lead to adverse outcomes including larger-than-normal babies and subsequent delivery complications. Women with gestational diabetes are seven times more likely to develop type 2 diabetes later in life, and their children are at greater risk of becoming obese and developing diabetes themselves [4].

2. Hormonal contraceptives as a Risk Factor

A number of risk factors have been found to have strong influences on the development of gestational diabetes, like maternal older age, overweight/obesity, and family history of GDM etc. Some of these factors are modifiable, rest are not (like age). But whatever the risk factors are, only by understanding and managing them with proper steps can ensure a sound and healthier life.

Recently, pre-pregnancy use of hormonal contraceptives is thought to be a potential risk factor for GDM. It has been found that, women who use hormonal contraceptives before they get pregnant may be 1.4 times more likely to suffer from gestational diabetes than women who do not use any method of birth control [5].

The Missouri Pregnancy Risk Assessment Monitoring System (PRAMS) survey, done in 2007 & 2008, is the first study to evaluate the relationship between type of contraception used before pregnancy and risk for GDM. The researchers found that, of the 2,741 women who completed the 2007–2008 PRAMS, 8.3% reported having been diagnosed with GDM in their most recent pregnancy. Of the total sample, 56% reported using no contraception. The most prevalent form of contraception used by Missouri PRAMS respondents was hormonal methods of contraception (17.9%), followed by barrier methods (17.2%), fertility awareness/rhythm method (6.8%), and other (2.3%). Women who used hormonal methods of birth control had higher odds for gestational diabetes (adjusted odds ratio [AOR] = 1.43; 95% confidence interval [CI], 1.32–1.55) than did women who used no contraception. A protective effect was also observed for women who had used barrier methods of contraception (AOR = 0.79; 95% CI, 0.72–0.86) [6].

Although researchers have not established a causal relationship between hormonal contraception use and gestational diabetes, results of this study suggest there may be an underlying correlating mechanism. The study had several limitations. It's unclear whether women had been on birth control when they got pregnant, and there is a risk of "recall bias" because women answered the PRAMS survey several months after giving birth. Another weakness was, how the survey was sent to a sample of women who delivered live babies in Missouri, and data are not generalizable to pregnant women with other outcomes or in different states [7].

Women on the pill before getting pregnant are 40% more likely to suffer from gestational diabetes than women who do not use any method of birth control, a new study suggests. This study provides evidences that hormonal contraceptive methods may increase a woman's risk for

GDM in her following pregnancy, even after adjusting for maternal age, race, education and income level, marital status, Medicaid status at delivery and type of prenatal care received [8].

Another study suggested that, compared with no hormonal contraceptive use, use of a low-androgen hormonal contraceptive before pregnancy was associated with a slight reduction in risk of GDM (odds ratio 0.84 [95% CI 0.58 – 1.22]), whereas use of a high-androgen hormonal contraceptive was associated with a modest increase in GDM risk (1.43 [0.92–2.22]) [9].

3. Conclusion

As more research is needed to assess hormonal contraception use as a potential risk factor and as new and safe contraceptive methods are now available, physicians and other health staffs should guide women by educating, counseling and suggesting a proper method as a measure to avoid the risk for gestational diabetes in their future pregnancy.

References

[1] Diabetes. Available from http://www.who.int/topics/diabetes_mellitus/en/
[2] Gestational Diabetes from Wikipedia, the free encyclopedia. Available from http://en.wikripedia.org/wiki/Gestational_diabetes
[3] American Diabetic association. Available from http://www.diabetes.org/diabetes-basics/gestational/what-is-gestational-diabetes.html
[4] Kaiser Permanente; Pre-pregnancy hormone testing may indicate gestational diabetes risk. Science Daily, 29 August 2013. <www.sciencedaily.com/releases/2013/08/130829110158.htm>.
[5] Hormonal birth control linked to risk of gestational diabetes. Available from http://www.cbsnews.com/news/hormonal-birth-control-use-linked-to-higher-risk-of-gestational-diabetes/
[6] Kramer BA, Kintzel J, Garikapaty V; Association Between Contraceptive Use and Gestational Diabetes: Missouri Pregnancy Risk Assessment Monitoring System, 2007–2008. Prev Chronic Dis, 2014; 11:140059. DOI:http://dx.doi.org/10.5888/pcd11.140059
[7] CDC study finds link between hormonal birth control and gestational diabetes. Available from LifeSiteNews.com (Canada) [CA] https://www.lifesitenews.com/news/cdc-study-finds-link-between-hormonal-birth-control-and-gestational-diabetes
[8] The Pill linked to risk of gestational diabetes. Available from http://truthaboutbirthcontrol.com/the-pill-linked-to-risk-of-gestational-diabetes/
[9] Monique M. Hedderson, PhD, Assiamira Ferrara, Md, PhD, Michelle A. Williams, SCD, Victoria L. Holt, PhD, Noel S. Weiss, MD, DRPH; Androgenicity of Progestins in Hormonal Contraceptives and the Risk of Gestational Diabetes Mellitus. Diabetes Care, 2007; 30:1062–1068

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