Pregnancy outcomes in women on metformin for diabetes or other indications among those seeking teratology information services

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Abstract

Background: Metformin is used to treat type 2 diabetes, polycystic ovary syndrome associated infertility, and gestational diabetes. Human studies evaluating the safety of metformin in early pregnancy are scarce.

Method: We evaluated the risk of major birth defects and pregnancy losses in a cohort of pregnant women exposed to metformin during first trimester for different indications relative to a matched unexposed reference group.

Results: The risk of major birth defects was 5.1% (20/392) in pregnancies exposed to metformin during the first trimester and 2.1% (9/431) in the reference group (adjusted odds ratio (OR) 1.70; 95%CI 0.70-4.38). Among metformin users, this risk was 7.8% (17/219) in patients with pre-gestational diabetes and 1.7% (3/173) in those without this diagnosis. Compared to the unexposed reference, the OR for metformin user with diabetes was 3.95 (95% CI 1.77-9.41) and for metformin with other indications it was 0.83 (95% CI 0.18-2.81). The risk of pregnancy losses (spontaneous abortions and stillbirths) was 20.8% in women on metformin during the first trimester and 10.8% in the reference group (adjusted hazard ratio (HR) 1.57; 95%CI 0.90-2.74). The risks for women on metformin with and without pre-

gestational diabetes were 24.0% and 16.8% respectively, with adjusted HR of 2.51 (95%CI 1.44-4.36) and 1.38 (95%CI 0.74-2.59) when compared to the reference.
Conclusion: Pregnant women with pre-gestational diabetes on metformin are at a higher risk for adverse pregnancy outcomes than the general population. This appears to be due to the underlying diabetes since women on metformin for other indications do not present meaningfully increased risks.

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