Hormonal Contraceptives May Affect GDM Risk

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The androgenicity of the progestin component of hormonal contraceptives used before pregnancy may affect risk for gestational diabetes mellitus, suggests a recent study.

In a nested case-control study of 724 women with a live singleton birth, the use of only low-androgen hormonal contraceptives for at least 6 months in the 5 years before pregnancy was associated with a 16% reduction in gestational diabetes mellitus (GDM) risk (adjusted odds ratio 0.84), compared with no hormonal contraceptive use. In addition, the use of a high-androgen hormonal contraceptive for at least 6 months—regardless of whether low-androgen contraceptives were also used—in the 5 years before pregnancy was associated with a 43% increase in GDM risk (adjusted odds ratio 1.43), reported Monique M. Hedderson, Ph.D., of the Kaiser Permanente Medical Care Program of Northern California, Oakland, and her colleagues.

Women who used Loestrin—the highest-androgen oral contraceptive—had the greatest increase in GDM risk (adjusted odds ratio 1.99), the investigators noted (Diabetes Care 2007;30:1062-8).

The findings remained essentially unchanged when the data analyses were repeated after excluding women who used nonoral hormonal contraceptives.

The 356 case patients and 368 controls were part of a multiethnic cohort of more than 14,000 women who delivered between Jan. 1, 1996, and June 30, 1998, and who were screened for GDM between 24 and 28 weeks' gestation. Patients were diagnosed with GDM if at least two of four plasma glucose values obtained during a 100-g, 3-hour oral glucose tolerance test were abnormal by National Diabetes Data Group criteria.

For oral contraceptives, high androgenicity was defined as androgenic activity of at least 0.47 mg of methyl testosterone equivalents per 28 days. Among nonoral hormonal contraceptives, Norplant was considered high androgen because it contains levonorgestrel, which has high androgenic activity; depomedroxyprogesterone acetate contraceptives were considered low androgen because they contain medroxyprogesterone, which has low androgenic activity.

There was some evidence in this study that the duration of contraceptive use also played a role in GDM risk: A greater reduction in GDM risk was seen with longer duration of low-androgen contraceptives. No clear trend emerged in regard to duration of use of high-androgen contraceptives. "However, the statistical precision of our results was not great, and, given no true associations, chance alone plausibly could have been responsible for those we did observe," the authors noted.

The risk reduction associated with low-androgen contraceptives was greatest when use was discontinued within 6 months before pregnancy, and the risk increase associated with high-androgen contraceptives was greatest when use was discontinued at least 1 year before pregnancy.

The effect of hormonal contraceptives on GDM risk may vary based on the androgenicity of the progestin component of the contraceptives, but the findings of this study should be interpreted with caution pending additional study, the investigators concluded. ■

Androgenic Activity of Methyltestosterone Equivalents per 28 Days

(in mg)

Selected Low-Androgenicity Contraceptives	
Ovrette	0.12
Micronor/Nor.Q.D.	0.12
Ovcom-35	0.14
Modicon, Brevicon	0.17
Ovulen 50, Demulen 1/50	0.21
Demulin 1/35	0.21
Ortho-Novum 10/11	0.26
Ortho-Novum 777	0.26
Tri-Levlen, Triphasil	0.29
Ovcon-50	0.34
Ortho-Novum 1/50	0.34
Ortho-Novum 1/35	0.34
Selected High-Androgenicity Contraceptives	
Nordette, Levlen	0.47
Lo/Ovral 28-day	0.47
Loestrin 1/20	0.52
Loestrin 1.5/30	0.79

Source: Dr. Hedderson