Antiepileptic Drugs in Pregnancy and Duration of Pregnancy, Birth Weight, Length, and Head Circumference

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DISCLOSURES
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BACKGROUND
• Antiepileptic drugs (AEDs) have been linked to reduced pregnancy duration and fetal growth restriction.1,2
• Dose-response effects have not been well characterized for these outcomes; such effects are known for valproic acid and other AEDs with births with birth defects.3

OBJECTIVE
• To explore the effect of maternal use of individual AEDs in pregnancy on pregnancy duration, birth weight, birth length, and head circumference, and possible dose- response effects on these outcomes.

METHODS
• We conducted a comparative-safety cohort study using nationwide Swedish Register data.
• Study population: All women exposed to AEDs in pregnancy who had a live birth at gestational age 24 to 42 completed weeks in the years 1996 through 2013 and their newborn infants. Infants from either single or multiple pregnancies and infants with congenital malformations were included. Pregnancies in women who immigrated fewer than 12 months before pregnancy and infants with chromosomal abnormalities were excluded. All eligible pregnancies per woman were included.
• Exposure: Carbamazepine, valproic acid, and lamotrigine (used as reference). Mothers use was ascertained from maternal self-report and dispensed prescriptions during pregnancy. Mean daily dose in pregnancy was calculated from dispensed prescriptions in the years 2006 through 2013.
• Characteristics of study population: Demographic characteristics, medical conditions, and medications used were ascertained from prenatal care records, hospitalization records, outpatient specialist visits, and dispensed prescriptions.
• Endpoints: Duration of pregnancy, birth weight, birth length, and head circumference.
• Statistical analyses: We used linear regression to assess the associations of interest, adjusting for key potential confounders (see the list below Table 2). In AED-specific dose analyses, we compared the association of high dose (top tertile of mean daily dose in pregnancy) versus low dose (bottom tertile) of each AED with the same outcomes, adjusting for the same variables.

RESULTS
• The study cohort had 6,720 AED exposed infants. AED use in pregnancy increased over the study period (Figure 1). Table 1 shows the characteristics of the study population by exposure drug.
• Results are shown in Figure 2 (unadjusted) and Table 2 (adjusted).

METHODS
OBJECTIVE
RESULTS
• Relative to lamotrigine, infants exposed to carbamazepine were born 15 days earlier on average and were slightly smaller in all assessed dimensions. A dose-response relation was seen for carbamazepine for all outcomes and for valproic acid in relation to head circumference.

REFERENCES

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