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Although severe maternal asthma during pregnancy is believed to adversely affect perinatal outcome, there are limited published data regarding this issue. The Organization of Teratology Information Services (OTIS) began a prospective multicenter cohort study of asthma medications in pregnancy in 1998. Between 1998 and 2001, 585 asthmatic and 148 non-asthmatic women were enrolled in the study. Participants were required to rate the severity of their asthma on at least three occasions during pregnancy (at intake, 20, 26, and 32 weeks gestation). These self-rated severity scores reflected the participants' asthma experience in the previous two-week period and were defined as follows: 1) no symptoms; 2) symptoms present but did not interfere with activities or sleep; 3) symptoms occasionally 4) frequently or 5) constantly interfered with activities or sleep. Asthma severity category at intake (mean 13.1 weeks gestation) and highest severity category at any point in pregnancy were significantly associated with premature delivery (odds ratio 2.5, 95% CI 1.3, 4.8, $p=.004$ for categories 3, 4 or 5 relative to 1 or 2 at intake, adjusted for medication group, smoking, maternal age, ethnicity, education, gestational diabetes and preeclampsia). Severity category at any point in pregnancy was not significantly related to spontaneous abortion, proportion of infants with major structural anomalies, or birth weight, length or head circumference. Although frequency of medication use was not taken into consideration in this analysis, these data suggest that self-reported symptom severity is predictive of premature delivery regardless of the category of medication used to treat the disease.