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The Impact of Asthma on congenital anomalies, prematurity, birth centiles and infant feeding: retrospective population cohort analysis 2004-2010

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Objectives

9.4% of pregnant women in Wales are prescribed medicines for asthma. Prescription of asthma medicines in early pregnancy is associated with increased prevalence of congenital anomalies (aOR 1.20, 1.08 - 1.34). The literature offers less consensus on more common adverse outcomes: premature delivery (<37 weeks), small for gestational age (<10th growth centile) (SGA), and failure to breastfeed.

Approach

Routinely collected data from the all-Wales health and social care linked electronic databank (the Secure Anonymised Information Linkage [SAIL]) were interrogated. Data from the Office of National Statistics birth and deaths registry, the National Community Child Health Database (NCCHD), the Patient Episode Database for Wales, primary care prescription records and the Congenital Anomaly Register (CARIS) 2000-2010 were linked. Growth centiles were calculated from WHO standards. Prescriptions were classified using ATC categories and BTS guidelines. We included live born singletons without congenital anomalies. We excluded infants exposed to medicines known to carry higher risks than asthma medicines: insulin, AEDs, coumarins. Odds ratios, with 95% CIs, were calculated for use of asthma medicines 1 year either side of pregnancy.

Results

357,989 pregnancies were identified in NCCHD 2000-2010. Data were available on 117,717 at delivery and 38,665 on breastfeeding at birth and 6-8 weeks 2004-2010. Data loss was due to suboptimal GP participation.

Delivery before 37 weeks' gestation and SGA were more common in those prescribed: any short acting beta2 agonists (SABA) (OR 1.12[CI 1.04-1.20], 1.15[1.08-1.28]); inhaled corticosteroids (ICS) (1.07[0.97-1.19], 1.18[1.09-1.29]); systemic corticosteroids (1.34[1.13-1.60], 1.23[1.06-1.43]).

At birth and 6-8 weeks, breastfeeding was less prevalent amongst those prescribed: SABAs (OR 0.90[CI 0.86-0.95], 0.87[0.82-0.93]); ICS (0.88[0.82-0.95], 0.85[0.78-0.93]); systemic corticosteroids (0.86 [0.76-0.98], 0.80[CI 0.69-0.94]).

Conclusion

Prescription of asthma medicines is associated with higher prevalence of conditions predisposing to childhood ill-health. While routinely collected data is unable to account for confounding by indication, and the impact of asthma cannot be disentangled from that of its treatment, these findings indicate that prescription of asthma medicines offer a useful marker to target additional support throughout pregnancy and lactation.

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