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Maternal Depressive Symptoms, Maternal Asthma, and Asthma in School-Aged Children

Medsker BH, Brew BK, Forno E, et al. *Ann Allergy Asthma Immunol*. 2017;118(1):55–60

PURPOSE OF THE STUDY. To determine if maternal asthma with depression increases the risk for asthma in children compared with maternal asthma without depression.

STUDY POPULATION. Two cross-sectional studies of 6- to 14-year-old children in Puerto Rico (PR) ($n = 655$) and Sweden (SW) ($n = 6887$).

METHODS. In the PR cohort, children were randomly selected based on 2009–2010 US census data. A screening questionnaire assessed for self-reported maternal asthma, physician-diagnosed asthma, and wheeze in the child within the preceding year. In the SW cohort, 2005–2010 twin registry data were used to identify children and mothers and provided data on self-reported maternal asthma and physician-diagnosed maternal depression. The validated Center for Epidemiologic Studies Depression Scale was used to assess for maternal depressive symptoms.

RESULTS. Maternal depression was not significantly associated with childhood asthma in the absence of maternal asthma in either cohort. Compared with mothers who had neither asthma nor depressive symptoms, children of mothers who had asthma without depressive symptoms had 3.2 (95% confidence interval [CI] 2.1–4.8) and 2.8 (95% CI 2.1–3.7) times increased odds of asthma in the PR and SW cohorts, respectively. Children of mothers who had both asthma and depressive symptoms had 6.5 (95% CI 3.3–13) and 4.0 (95% CI 1.7–9.6) times increased odds of asthma in the PR and SW cohorts, respectively. There were no statistically significant additive interactions of maternal asthma and depression on childhood asthma development, although there was a trend toward an increased estimated effect of depressive symptoms and depression on childhood asthma.

CONCLUSIONS. Maternal depressive symptoms and depression in the presence of maternal asthma increased the risk of childhood asthma development in this cross-cultural study.

REVIEWER COMMENTS. This study highlights the importance of managing childhood asthma with a family approach. It is postulated that maternal depression can influence childhood asthma through impaired attention to asthma management with poor health care and medication use. Depression during pregnancy has also been postulated to alter immune responses and the hypothalamic-pituitary adrenal axis, leading to an increased risk of asthma development. Providers should consider probing for maternal or caregiver depression when treating children for asthma.

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Siblings Promote a Type 1/Type 17-Oriented Immune Response in the Airways of Asymptomatic Neonates

Wolsk HM, Chawes BL, Folsgaard NV, et al. *Allergy*. 2016;71(6);820–828

PURPOSE OF THE STUDY. To determine whether having siblings affects the airway immune response in healthy neonates, a characteristic that could be attributed to an underlying immune modulatory pathway.

STUDY POPULATION. Five hundred seventy-one 1-month-old, asymptomatic neonates from the Copenhagen Prospective Studies on Asthma in Childhood 2010 ($COPSAC_{2010}$) birth cohort were studied.

METHODS. Unstimulated airway mucosal lining fluid was sampled via the nose at 1 month of age. A variety of cytokines and chemokines were assayed by multiplex array, high-sensitivity enzyme-linked immunosorbent assay. Mediator profiles were grouped into Type I, Type 2, Type 17, and T regulatory responses. The association between airway mediator levels and the presence of siblings was investigated by using conventional statistics and principal component analysis.

RESULTS. Neonates with siblings had higher levels of airway immune mediators, predominately in the Type 1 and Type 17 categories. There was a highly significant difference between neonates with and without siblings ($P > 10^{-10}$), which persisted after adjustment for potential confounding variables, such as pathogenic airway bacteria and viruses ($P < .0001$). With increasing time from the previous childbirth, the immune responses skewed toward the levels found in neonates without siblings.

CONCLUSIONS. The results of this study show that there is an immune modulatory effect of having siblings that leads to more enhanced Type 1 and Type 17 responses versus Type 2 responses. This appears to reflect possible in utero priming because the observed effect decreased with increased time from the previous childbirth. Such responses could have a role in risk for later development of asthma and allergy.

REVIEWER COMMENTS. The researchers in this study lay the foundation for future analysis to determine whether the cytokine and chemokine phenotype for the 20 mediators examined in the neonatal cohort affects the long-term development of asthma and/or allergy. The microbiome and/or exposome mentioned in the discussion may also have a determining role.

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