

Asthma

PATHOPHYSIOLOGY

Paracetamol in Pregnancy and the Risk of Wheezing in Offspring: A Systematic Review and Meta-analysis

Eyers S, Weatherall M, Jefferies S, Beasley R. *Clin Exp Allergy*. 2011;41(4):482–489

PURPOSE OF THE STUDY. To review the evidence from studies that investigated the association between paracetamol (acetaminophen) use in pregnancy and childhood asthma.

STUDY POPULATION. The meta-analysis included randomized controlled trials (RCTs) and observational studies published before October 2010 that compared women who used paracetamol during pregnancy with a placebo (RCT) or control (observational) group and evaluated the effect of paracetamol use during pregnancy on offspring using wheeze or asthma as a primary outcome. Only studies that presented raw data, or from which raw data were available from the authors on request, were used.

METHODS. Articles were searched for in health research databases, in previous meta-analyses, and in the reference lists of relevant studies. Articles were examined, and raw data were extracted. If appropriate data were not included in the studies, the lead author was contacted in an attempt to obtain the raw data. The primary outcome variable was wheeze in the 12 months before the last interview, defined as “current wheeze.” For tabulated raw data, not adjusted for confounders, random-effects odds ratios were pooled by the inverse variance weighted method.

RESULTS. Six studies were included: 5 prospective cohort studies and 1 cross-sectional study. The age range of the children in these studies was 30 to 84 months. The pooled random-effects odds ratio for the risk of current wheeze in the children of women who were exposed to any paracetamol during any stage of pregnancy was 1.21 (95% confidence interval: 1.02–1.44).

CONCLUSIONS. The use of paracetamol during pregnancy is associated with an increased risk of childhood asthma.

REVIEWER COMMENTS. The results of this meta-analysis confirm the association seen in individual studies over recent years between early paracetamol (acetaminophen) exposure and wheeze. In contrast with studies of the association between paracetamol use in early postnatal life and wheeze, studying paracetamol exposure in utero vastly decreases the potential for confounding by indication. The authors’ decision to use the unadjusted odds ratio is well justified but leaves open the possibility that the effect seen might be a result of confounding to some

extent. Given the almost ubiquitous use of paracetamol, and the recent increase in rates of atopy, untangling the true association between paracetamol and atopy is a topic that should, and undoubtedly will, have significant attention devoted to it in the coming years.

URL: www.pediatrics.org/cgi/doi/10.1542/peds.2011-2107PP

Lara S. Ford, MD, MPH
Scott H. Sicherer, MD
New York, NY

Cord-Blood 25-Hydroxyvitamin D Levels and Risk of Respiratory Infection, Wheezing, and Asthma

Camargo CA Jr, Ingham T, Wickens K, et al; New Zealand Asthma and Allergy Cohort Study Group. *Pediatrics*. 2011;127(1). Available at: www.pediatrics.org/cgi/content/full/127/1/e180

PURPOSE OF THE STUDY. Previous studies have provided support for the role of low vitamin D levels in the increasing prevalence of asthma. This study examined the relationship between cord-blood levels of vitamin D and respiratory infection, wheezing, and asthma.

STUDY POPULATION. Cord blood from study participants ($N = 922$) was collected as part of a prospective birth cohort of 1105 children recruited by a random sample of midwives in the New Zealand Asthma and Allergy Cohort Study. Questionnaires were administered by study nurses at birth, 3 months, and 15 months and then annually between the ages of 2 and 5 years.

METHODS. Cord-blood 25-hydroxyvitamin D (25[OH]D) levels were measured and categorized as ≥ 75 , 25 to 75, or < 25 nmol/L. The primary outcomes were the incidence of respiratory infection, cumulative wheeze, and incidence of asthma by 5 years of age based on answers to the questionnaires. Multiple confounding covariates were accounted for, including season of birth, ethnicity, and environmental tobacco smoke exposure. The linear regression or the Kruskal-Wallis test for continuous variables and the Wilcoxon-Mann-Whitney test for categorical variables were used to test for trend across vitamin D levels. Multivariable logistic regression models were used to test the association between cord-blood 25(OH)D levels and infection outcomes at 3 months of age.

RESULTS. Data were available for 882 (96%) children at 3 months of age and 823 (89%) children at 5 years of age. The median 25(OH)D cord-blood level was 44 nmol/L. An inverse association was found between cord-blood 25(OH)D levels and risk of respiratory infection by 3 months of age. Newborns with 25(OH)D levels of < 25 nmol/L had an increased risk of respiratory infections (odds ratio [OR]: 2.04) and other viral infections (OR: 2.36) compared with those with levels of

Paracetamol in Pregnancy and the Risk of Wheezing in Offspring: A Systematic Review and Meta-analysis

Lara S. Ford and Scott H. Sicherer

Pediatrics 2011;128;S117

DOI: 10.1542/peds.2011-2107PP

Updated Information & Services	including high resolution figures, can be found at: http://pediatrics.aappublications.org/content/128/Supplement_3/S117.1
Subspecialty Collections	This article, along with others on similar topics, appears in the following collection(s): Allergy/Immunology http://www.aappublications.org/cgi/collection/allergy:immunology_sub Asthma http://www.aappublications.org/cgi/collection/asthma_sub
Permissions & Licensing	Information about reproducing this article in parts (figures, tables) or in its entirety can be found online at: http://www.aappublications.org/site/misc/Permissions.xhtml
Reprints	Information about ordering reprints can be found online: http://www.aappublications.org/site/misc/reprints.xhtml

American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN™



PEDIATRICS®

OFFICIAL JOURNAL OF THE AMERICAN ACADEMY OF PEDIATRICS

Paracetamol in Pregnancy and the Risk of Wheezing in Offspring: A Systematic Review and Meta-analysis

Lara S. Ford and Scott H. Sicherer

Pediatrics 2011;128;S117

DOI: 10.1542/peds.2011-2107PP

The online version of this article, along with updated information and services, is located on the World Wide Web at:

http://pediatrics.aappublications.org/content/128/Supplement_3/S117.1

Pediatrics is the official journal of the American Academy of Pediatrics. A monthly publication, it has been published continuously since 1948. Pediatrics is owned, published, and trademarked by the American Academy of Pediatrics, 141 Northwest Point Boulevard, Elk Grove Village, Illinois, 60007. Copyright © 2011 by the American Academy of Pediatrics. All rights reserved. Print ISSN: 1073-0397.

American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN™

