

Early childhood respiratory infections may explain link between analgesics and asthma

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A new study conducted by Boston researchers reports that the link between asthma and early childhood use of acetaminophen or ibuprofen may be driven by underlying respiratory infections that prompt the use of these analgesics, rather than the drugs themselves.

The results of the new study will be presented at the ATS 2013 International Conference.

[Analgesics](#) like ibuprofen and [acetaminophen](#) are routinely given to treat fever in infants, and several studies have shown a link between the use of analgesics during infancy and the subsequent development of [asthma](#) and asthma symptoms including wheeze. However, although respiratory infections are a common cause of fever in infants, these earlier studies did not consider whether the underlying respiratory infection played a role in the eventual development of asthma and asthma symptoms in these [children](#).

"Many children are given over-the-counter analgesics to treat the fever that accompanies respiratory infections, so it seemed unclear to us whether asthma and wheeze were really linked to the use of these drugs or perhaps to the respiratory infection itself," explained study lead author Joanne Sordillo, ScD., instructor of medicine at Brigham and Women's Hospital in Boston.

"In our study, we wanted to try to determine if accounting for early life respiratory infections mitigated the relationship between analgesic use

and development of wheeze and asthma in children," she said.

The researchers used data from 1,139 mother-child pairs who participated in Project Viva, a research study of [pregnant women](#) and their children that examined [lifestyle factors](#) during pregnancy and after birth and evaluated their effects on the development of asthma and other childhood conditions. Mothers completed [questionnaires](#) during [early pregnancy](#), at mid-pregnancy and at one year following birth to determine acetaminophen and ibuprofen use. Also, during the first three years of each child's life, every mother provided an annual report of any doctor's diagnosis of asthma or wheezing symptoms.

To quantify prenatal exposure in early and mid-pregnancy, the researchers divided subjects' acetaminophen exposure into three categories: those who never used the drug; those who used it less than 10 times; and those who used acetaminophen more than 10 times. Ibuprofen use was much less frequent during early pregnancy and mothers were grouped into two categories: those who took the drug and those who did not. Ibuprofen use beyond the first trimester was rare and was not included in the analysis.

For childhood exposure during the first year of life, the researchers divided infants into four groups for each drug: those who were never given the drug; those who were given the drug one to five times; those who were given the drug six to 10 times; and those who received more than 10 doses of the drug during the first year of life.

Reviewing the study data, the researchers found a higher exposure to acetaminophen both prenatally and during the first 12 months of life compared to ibuprofen: 70 percent of mothers reported acetaminophen use during pregnancy while only 16 percent of mothers said they had used ibuprofen while pregnant; 95 percent of children were given at least one dose of acetaminophen during infancy versus 70 percent of children

who had been given at least one dose of ibuprofen. About 43 percent of children were given more than 10 doses of acetaminophen before they were a year old compared to 25 percent of children who received more than 10 doses of ibuprofen.

Next, the researchers looked at drug use and the occurrence of asthma and asthma-like symptoms overall, and then adjusted the analysis to account for respiratory infections the children experienced by the age of three. These infections included bronchiolitis, pneumonia, bronchitis, croup or any other [respiratory infection](#).

At the conclusion of their study, the researchers found that while use of the drugs was associated with wheeze and asthma in unadjusted models, after adjusting the results to account for respiratory infections, the association between medication use in [early childhood](#) and [asthma symptoms](#) was substantially reduced.

"These results suggest that respiratory infections in [infancy](#), and not analgesic use, are the actual underlying risk factor for asthma and wheeze in children," said Dr. Sordillo.

The researchers also found that prenatal exposure to analgesics was associated with wheeze and asthma in the children. However, because they did not have information regarding why the women took analgesics while pregnant, the researchers were unable to adjust for those potential factors; for now, this link must be interpreted with caution, she said.

"Future studies will need to carefully collect information regarding the reasons for taking such over-the-counter drugs as analgesics during pregnancy," she said.

Provided by American Thoracic Society

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