Medical Xpress

Causal link between antibiotics and childhood asthma dismissed

December 1 2014

In a new register study in the scientific journal *BMJ*, researchers at Karolinska Institutet are able to dismiss previous claims that there is a link between the increased use of antibiotics in society and a coinciding rise in childhood asthma. The study includes half a million children and shows that exposure to antibiotics during pregnancy or early in life does

not appear to increase the risk of asthma.

Several previous studies have shown that if the mother is given antibiotics during pregnancy or if a small child is given antibiotics in early life, the child has an increased risk of developing asthma. These studies have led to a widespread belief of a causal link. However, according to the researchers at Karolinska Institutet, there is reason to question the results of these studies.

It may be difficult to diagnose asthma in small children since newly presented symptoms of asthma can be misinterpreted as a respiratory infection. The children may then have received antibiotics for the supposed infection - which actually is asthma - and the antibiotic treatment is then suspected to have caused the asthma that is later discovered. Another explanation is that respiratory infections themselves increase the risk of asthma, regardless of whether or not they are treated with antibiotics. A third explanation is that previous studies have not given sufficient consideration to other factors shared within families that may increase the risk of asthma, such as genetics, home environment and lifestyle.

"Thanks to the Swedish population based registers we have been able to conduct a study designed to include factors that were previously not included. Our results show that there does not appear to be a causal link between early exposure to antibiotics and asthma, which is also valuable from an international perspective," says Anne Örtqvist, physician and doctoral student at the Department of Medical Epidemiology and Biostatistics at Karolinska Institutet.

The study includes almost 500,000 children born in Sweden between January 2006 and December 2010. As a first step, the researchers studied the children that had been exposed to antibiotics in fetal life, when their mothers were treated during pregnancy, and found that the

risk for asthma in the child was increased by 28%. The researchers then included other risk factors such as genetics, home environment or lifestyle by performing comparative analyses within families with several children, and found that the relationship between antibiotics during pregnancy and asthma disappeared.

In brief, there were a large number of children in the study where one sibling had asthma and where another had been exposed to antibiotics early in life without developing asthma. The number of such families was large enough to rule out a causal link between antibiotics during pregnancy and asthma in the child, according to the study.

In the next step, children who had received antibiotics early in life were studied. The researchers compared if the risk of developing asthma after treatment with antibiotics was equally high if the child had been treated for a skin-, urinary tract- or respiratory infection. They found that this was not the case. The risk was instead much higher after being treated for a respiratory infection, which indicates that the link was due to newly presented asthma being misinterpreted as a respiratory infection and treated with antibiotics, or that the respiratory infection in itself increases the risk of asthma, regardless of whether or not it is treated with antibiotics.

When the researchers conducted sibling analyses divided by skin-, urinary tract- and respiratory infection, the link between antibiotics treatment and asthma disappeared.

"Our results indicate that there is no causal link between antibiotics treatment and childhood asthma. But it is still important to use antibiotics very carefully, considering the threat of antibiotic resistance. We also want to emphasise the importance of correctly diagnosing children with airway symptoms, where suspected symptoms of asthma should be separated from respiratory infection," says Catarina Almqvist

Malmros, Pediatrician and Professor at the Department of Medical Epidemiology and Biostatistics, who led the study.

More information: " Antibiotics in fetal and early life and subsequent childhood asthma: nationwide population based study with sibling analysis ". Anne K Örtqvist, Cecilia Lundholm, Helle Kieler, Jonas F Ludvigsson, Tove Fall, Weimin Ye & Catarina Almqvist, *British Medical Journal*, online 28 November 2014, *BMJ* 2014;349:g6979. www.bmj.com/content/349/bmj.g6979

Provided by Karolinska Institutet

Citation: Causal link between antibiotics and childhood asthma dismissed (2014, December 1) retrieved 26 April 2024 from https://medicalxpress.com/news/2014-12-causal-link-antibiotics-childhood-asthma.html

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.