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High maternal sugar intake during pregnancy associated with allergy and allergic asthma in children

Prior research has shown a correlation between high intake of beverages containing sugar and the incidence of asthma in children.¹ Now, a study of nearly 9,000 mother/child pairs by a team from Queen Mary University of London (QMUL) and the University of Bristol has shown high maternal sugar intake during pregnancy may increase the risk of allergy and allergic asthma in their children.^{2,3} Published in the *European Respiratory Journal*,² the study was also described in articles published by *Science Daily*, nine.au.com and *That Sugar Blog*.^{4,6}

Methods

Data was analyzed from a major birth cohort study, the Avon Longitudinal Study of Parents and Children (ALSPAC) also known as “Children of the 90s.” The cohort recruited mothers who were pregnant in the early 1990s and has followed their children since.

The new study used a food frequency questionnaire during the third trimester of pregnancy to evaluate mothers’ intake of added sugar, as well as respiratory and allergic outcomes in their children at seven years of age, by skin testing for common allergens including dust mite, cat and grass. Added or free sugars are defined by the World Health Organization as “all monosaccharides and disaccharides added to foods by the manu-

facturer, cook or consumer, plus sugars naturally present in honey, syrups and fruit juices.”^{6,7} They differ from naturally occurring sugars found in whole foods such as fruit, vegetables or dairy products.^{6,7}

In addition, the study controlled for potential confounders, such as background maternal characteristics, social factors and other aspects of maternal diet, including foods and nutrients that have been previously linked to childhood asthma and allergy.

Results

There was only weak evidence for a link between free sugar intake in pregnancy and asthma overall. However, there were strong positive associations between free sugar intake and allergy and allergic asthma (where the child was diagnosed with asthma and had positive skin tests to allergens). No link was evident between the amount of sugar children ate during early childhood and their likelihood of developing allergies or asthma.

A comparison of the 20 percent of mothers with the highest sugar intake versus the 20 percent of mothers with the lowest sugar intake showed an increased risk of 38 percent for allergy in their children, with a 73 percent increased risk for allergy to two or more allergens and a 101 percent

increased risk for allergic asthma. No associations with eczema or hay fever were found.

Conclusions and further plans

The researchers “speculate that the associations may be explained by a high maternal intake of fructose causing a persistent postnatal allergic immune response leading to allergic inflammation in the developing lung.”^{2,3}

Lead researcher Professor Seif Shaheen of QMUL explained that based on the observations, it cannot be said that a high intake of sugar by mothers in pregnancy is definitely causing allergy and allergic asthma in their children. However “given the extremely high consumption of sugar in the West, the team will certainly be investigating the hypothesis further with some urgency,” he said. “The first step is to see whether we can replicate these findings in a different cohort of mothers and children. If we can, then we will design a trial to test whether we can prevent childhood allergy and allergic asthma by reducing the consumption of sugar by mothers during pregnancy.”³ Meanwhile, Shaheen recommended that pregnant women follow current nutrition guidelines and avoid excessive sugar consumption.