"Maternal consumption of peanut during pregnancy is associated with peanut sensitization in atopic infants" (2010), by Scott Sicherer, et al. [1]

By: Pingolt, Maggie Keywords: Pregnancy [2] Fetus [3]

In 2010, a team of US researchers concluded that the more peanuts a pregnant woman ate during her pregnancy [4], the more likely her newborn was to be sensitive to peanuts. They published their results in 2010's "Maternal consumption of peanut during pregnancy [4] is associated with peanut sensitization in atopic infants". The work resulted from the collaboration of Scott Sicherer and Hugh Sampson, both from the Jaffe Food Allergy Institute, Mount Sinai School of Medicine, in New York, New York along with other colleagues. The experiment identified prenatal and postnatal factors associated with peanut sensitization, which was identified and measured by the blood plasma levels of a specific class of antibody, immunoglobulin E (IgE), in infants. The researchers concluded that there was a direct correlation between maternal intake of peanut during pregnancy [4] and a high level of peanut sensitization in the infant after birth.

Sicherer and Sampson's co-authors worked at various organizations across the US. Robert Wood worked at the Johns Hopkins University School of Medicine [5], while Donald Stablein and Robert Lindblad worked for the EMMES Corporation, all in Maryland. A. Wesley Burks worked at the Duke University Medical Center, in Durham, North Carolina, while Andrew Liu, David Fleischer, and Donald Leung all worked for the National Jewish Health Hospital, in Denver, Colorado. Stacie Jones worked for the University of Arkansas for Medical Sciences, in Little Rock. Many of the participating scientists disclosed potential conflicts of interest with this study because of their consultation efforts, advisory and chairperson positions, and grant support from allergy-specific organizations, networks, and groups.

The scientists evaluated 503 infants 3 to 15 months of age. Only subjects with likely milk or egg [6] allergies were included in the study. Using infants predisposed to food allergies increased the likelihood of finding subjects with peanut sensitization, a stratgey that increased the number of subjects that could be involved in the study. Researchers explored possible relationships between consumption habits and peanut sensitization, including dose-dependent effects of peanut consumption by the pregnant or nursing mothers. The authors tracked maternal exposure to peanuts by recording levels of ingestion throughout each trimester [7] of the pregnancy [4] and during breast-feeding. Levels of peanut ingestion included less than two times a week, more than or equal to two times a week but less than daily, daily, or unknown. The researchers also recorded the socio-economical status, medical history, and behaviors of the mothers during pregnancy [4] to check for any correlations between these factors and the antibody levels in the infants.

Scientists can detect food sensitivities or allergies by measuring specific antibody (a type of immune protein, or immunoglobulin) levels in the blood. Immunoglobulin G (IgG), the most

abundant class of immunoglobulin, is sometimes involved in allergic reactions, and can pass from mother to fetus [8]. Immunoglobulin E (IgE) secretes from the human gastrointestinal and respiratory tracts and helps trigger the allergic response.

Sicherer and colleagues took blood samples from each infant to measure the correlation between an infant's IgG and peanut-specific IgE levels, and the frequency of peanut consumption by the mother. They could then determine whether the mothers' immune molecules were passed on (via IgG) to the fetuses and how much of the fetuses' own response (via IgE) was responsible for any sensitivities to allergens. Sensitivity to peanuts, as indicated by peanut-specific IgE levels, does not necessitate a peanut allergy, but many researchers consider it a sign of susceptibility to peanut allergy. Peanut allergies are often measured using an oral allergy test, but these methods were avoided due to the young age of the infants involved. As a supplement to the IgE and IgG blood analyses, Sicherer and team also used skin prick tests on the infants, a common tests to determine a person's reaction to a potential allergen.

Overall, this study showed that an infant's sensitivity to peanuts correlates directly with the mother's peanut consumption during pregnancy [4]. Nearly 69 percent of infants showed one or more signs of peanut sensitivity, whether with a positive skin prick test (54 percent) or blood test for high levels of immunoglobulins (60 percent). Additionally, infant levels of peanut IgE highly correlated with infant egg [6] and milk-specific IgE, as well as with levels of peanut ingestion by the pregnant mother, whether or not they breastfed their young. Though previous studies had found little evidence of an effect of maternal consumption of peanuts on infants' peanut allergies, the authors claim some of those studies had small sample sizes or were based on delayed recall of diet during pregnancy [4], potentially skewing results. The researchers also found that males and infants with non-white racial backgrounds were more strongly linked to peanut sensitization.

Roughly 1 percent of children suffer from peanut sensitivity or allergy and this affliction can often be fatal. Sicherer and his colleagues' findings show that maternal consumption of common allergy-causing foods during pregnancy [4] or breastfeeding may affect the chances that infants will be sensitive or allergic to the food allergen. They suggested further experimental, rather than observational, investigations to test this finding. The results of this study interested policy groups like the United Kingdom's Committee on Toxicology and the US's American Academy of Pediatrics because these groups help policy makers and health practitioners improve health guidelines for expecting mothers. From 1998 to 2000, the Academy of Pediatrics and the Committee on Toxicology recommended that women with infants at risk of inheriting other allergies avoid peanuts during pregnancy [4] and lactation. While that advice is a point of contention and was recalled in 2008, the work of Sircherer and colleagues indicates that it may be beneficial for pregnant and lactating mothers to avoid eating peanuts, especially if they have other food allergies their children may inherit.

Sources

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