News Articles

Interview with Dr. Azad: Understanding the interactions between prenatal environments and allergies.

By Thilina Bandara

Allergies and asthma affect one in three people, and cause over 200 deaths a year in Canada (1). It is now understood that asthma and allergies may be the result of interactions between genetics, lifestyle and environmental triggers early in life (2), which leads to the hope that effective early childhood interventions can improve the lives of millions worldwide.

A group of researchers across Canada are working to assess exactly which risk factors underlie the complex nature of allergies and asthma.

Started in 2007, The Canadian Healthy Infant Longitudinal Development (CHILD) Study is a longitudinal birth cohort study that tackles many specific research questions to help assess the larger picture surrounding allergy and asthma. Life stress, nutrition, genetics and environmental exposures are among the risk factors researchers are assessing in the CHILD study across Canada (3): To accomplish this over 3,629 pregnant mothers were recruited, representing over 10,000 Canadians overall (4).

Many types of data are being collected from the participants, and their homes, to account for the complexity of allergies and asthma. The children are clinically assessed at three months, and ages one, three and five, where parental and child blood, breastmilk, meconium, viral swabs, urine, stool samples, and infant peripheral blood are collected.

Repeated questionnaires over five years, pre- and postnatal nutrition, health status and medication data will allow researchers to assess biological environmental factors, while allergen, endotoxin and beta-glucan levels in household dust provide information on built environmental factors. Together these data give researchers an understanding of the conditions under which these children develop.

Follow-up data regarding pulmonary health status, genetics, and allergy testing will then give insights into the causal links between possible risk factors and poor health outcomes.

“The study is really a national treasure and a gold mine for students,“ says Dr. Azad on the value of the CHILD study. “We now have 5 years of data on these over-3500 families, which is an amazing resource and there are endless questions you could ask.”

Dr. Azad’s research focuses on how the maternal environment affects child health outcomes, specifically obesity and allergies. Utilizing the breast milk samples that were collected, Dr. Azad’s team is conducting both molecular and epidemiological analyses to investigate the hunch many researchers have that breastfeeding is protective for children’s health.

“CHILD is now a platform for all sorts of longitudinal data and questions”

The findings from the CHILD study have widespread implications on policy in Canada and around the world. Dr. Azad’s work specifically applies to breastfeeding regulation and policies. She hopes that her findings regarding the possible added benefits of breastfeeding on childhood immunity informs best practices for future mothers and improves industry regulations of baby formula.

Going forward, researchers anticipate continuing the analysis to assess all the possible links between the many dimensions of the study. Dr. Azad looks forward to the new generations of research that will emerge from the data, and hopes student take advantage of the CHILD study’s large dataset.

For more information, students can access to any of the 40+ investigators involved in the CHILD study by visiting the contact us page on the CHILD website (http://www.canadianchildstudy.ca/ask.html). ■

References

1. AllerGen Network. 2016. CHILDhood influences. Accessed on May 31st from: http://allergen-nce.ca/wp-content/uploads/CHILDhood%20influences_12CHILD_International%20Innovations.pdf
2. Mayo Clinic. 2016. Childhood asthma. Accessed on May 31, 2016 from: http://www.mayoclinic.org/diseases-conditions/childhood-asthma/symptoms-causes/dxc-20193101
3. CHILD Study. 2013. Canadian Health Infant Longitudinal Development (CHILD) Study. Accessed on May 31, 2016 from: http://www.canadianchildstudy.ca/hypothesis.html
4. AllerGen: CHILD Study Backgrounder. Accessed on May 31st, 2016 from: http://allergen-nce.ca/wp-content/uploads/2013/11/CHILD-Backgrounder-v2.pdf

Thilina Bandara

Thilina Bandara is a PhD student and a Natural Sciences and Engineering Research Council of Canada Doctoral Fellow in the Department of Community Health and Epidemiology at the University of Saskatchewan. He is also currently involved in built environment and health equity research at the Saskatchewan Population Health and Evaluation Research Unit. His research interests include health equity, knowledge translation and One Health.