

Childhood Respiratory Illness and the Potential Link to Maternal Gestational Diabetes

Carrie Kobelsky, M.Sc.
University of Victoria
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Background/Rationale

- Gestational diabetes
 - Inability to produce enough insulin
 - Diagnosed 24-28 weeks gestation
 - Disappears within 6-12 weeks postpartum
- Gestational diabetes effects on infants/children
 - Obesity
 - Type II diabetes
 - Increased rates respiratory illness
 - Immature lungs
- Lack of research on respiratory illness
 - Respiratory illness (RI)
 - Upper- or lower-tract infection or chronic illness of the respiratory system

Objectives/Hypotheses

- Objectives
 - Necessary to link mother/child data
 - Gestational environment can have lasting impact on child
 - Incidence of respiratory illness between 0-10 years
 - Prevalence of respiratory illnesses
 - Secondary objective → screening tools for physicians
- Hypotheses
 - Children in the cohort will have higher incidence of childhood RI
 - Children in the cohort will have more prevalent rates of chronic RIs (e.g., bronchitis, asthma) than the comparison group

Proposed Cohorts

- Cohort of interest
 - Women diagnosed with gestational diabetes during pregnancy, ICD-10 code O24.4
 - Children born of women with GD
 - Children diagnosed with upper- or lower- RI, ICD-10 codes J00-J47.9
 - Ages birth-10 years
- Comparison cohort
 - Women who gave birth in a hospital that did not have GD
 - Children born of women without GD
 - Children diagnosed with upper- or lower- RI
 - Ages birth-10 years

Analyses

- Cox Proportional Hazards Model
 - Follow time as a continuous variable
 - Time course of children developing RIs
 - Cohort and population control groups
 - Determine the ratio between children with RIs born of mothers with GD versus children in the general population
 - Use **survival** package in R
 - Do the trajectories diverge as we follow children through time?

Future Directions

- Combining of mother and child data (especially pregnancy)
 - More complete health record
- If the evidence shows an increase in prevalence and/or incidence of RIs in children whose mothers have GD:
 - Screening by physicians
 - Earlier interventions in seemingly “harmless” RIs
 - i.e., steroid therapy for common cold/influenza after X days

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