



Thyroid Study Seeks Infants

The Hospital for Sick Children is looking for infants who will be turning six months old this year to participate in a study on Vision and Thyroid Hormone. Infants whose mothers had a thyroid condition during pregnancy or who were without a medical condition during pregnancy are needed. Participants will also be able to partake in an Infant Neurodevelopment assessment later on, if interested. Volunteer families will be reimbursed for any expenses incurred as part of their participation.

For more information, please contact Dina Lafoyiannis at (416) 813-8285 or dina.lafoyiannis@sickkids.ca or view the study details below.

RESEARCH INFORMATION

Thyroid Hormone in Pregnancy and Infant Visual Processing

Investigators:

Joanne Rovet, Ph.D.

Professor and Senior Scientist, Psychology Department, HSC, (416)813-8285

Dina Lafoyiannis, B.H.Sc., M.Sc. (candidate)

Graduate Student, Psychology Department, HSC, (416) 813-8285 dina.lafoyiannis@sickkids.ca

Carol Westall, Ph.D.

Director, Visual Electrophysiology Unit, Department of Ophthalmology, HSC, (416) 813-8281

Gideon Korean, M.D.

Professor and Senior Scientist, Div. of Clinical Pharmacology and Toxicology, HSC, (416)813-5778

Denice Feig, Ph.D.

Assistant Professor and Staff Endocrinologist, Mount Sinai Hospital, (416) 586-8590

Purpose:

Thyroid hormone is necessary for infant neurodevelopment. Children of mothers who were hypothyroid during pregnancy may have been exposed to insufficient levels of thyroid hormone levels during early pregnancy when the demands for thyroid hormone are very large. Children of mothers who were hyperthyroid during pregnancy may have experienced insufficient thyroid hormone levels during later pregnancy because of the blocking actions of the thyroid medications the mother was taking. Recent studies with animals indicate that the developing visual system may be sensitive to a loss of thyroid hormone during pregnancy and that different aspects of visual functioning may need thyroid hormone at different stages of pregnancy. Our previous research has shown that children of hypothyroid or hyperthyroid women during pregnancy may have subtle visual attention problems. We now want to identify the basic visual deficits underlying these visual attention problems and their relationship to timing of thyroid hormone deficiency.

Description of the Research:

We will compare three groups of infants. These will include children of mothers who had (a) hypothyroidism during pregnancy, (b) hyperthyroidism during pregnancy and took thyroid medication during pregnancy, and (c) normal thyroid hormone function during pregnancy. When the infants are 6 months, we will test various aspects of their visual processing. This will include a brief ophthalmology exam as well as assessments of three basic visual functions: contrast sensitivity, visual acuity, and colour vision. At 14 months, they will receive an assessment of general intelligence that includes measures of basic learning, language, and motor skills.

Procedure:

Eye Exam. At 6 months of age, your child will be given a short standard eye exam (no drops) to rule out the possibility that your child's performance on any of the tests is affected by poor vision. The exam will be administered by an eye doctor and will last ten minutes.

Visual Evoked Potential (VEP). We will test several aspects of your child's visual processing using the visual evoked potential technique. This technique is a standard method used routinely in the Eye Clinic at The Hospital for Sick Children. Visual evoked potentials are very small signals that can be detected by small sensors placed on your child's head. These sensors passively detect brain activity, similar to the way heart activity is measured with an electrocardiogram (ECG) using sensors placed on the chest. The electrical signals that we record are the messages sent by the eyes to the brain, and these signals tell us how well your child's visual system is working. This process involves placing 5 small, gold-plated sensors on your child's head, which are kept in place with a small amount of gel. A band will also be carefully wrapped around the child's head to keep the sensors in place. The sensors will be connected to a computer that records the signals. Your child will then sit on your lap and watch patterns on a computer screen. The entire session – putting on sensors, testing, removing sensors and clean up – takes approximately 45 minutes. This technique will be used to assess colour vision, visual acuity, and contrast sensitivity, or how well your child sees contrasts and fine detail.

Additional Measures. Each mother will also be asked to complete several questionnaires. These will include measures of infant temperament and current stress. When the child is 14 months of age, mothers will also be asked to complete an optional brief intelligence test. All results are confidential and used only for research purposes. These are not included in your child's report.

Potential Harms, Injuries, Discomforts or Inconvenience:

The eye exam and use of sensors are painless, harmless and non-invasive. Your child will be seated on your lap throughout all test procedures. As well, you and your child can take as many breaks as necessary during the assessments. We expect that your child will feel no discomfort or only mild discomfort from the headband during testing. As your child's head will be initially cleaned with a mild abrasive paste, this may cause a slight discomfort to the areas of the scalp being cleaned. After the test, sensors will be removed and the gel cleaned off. Sometimes small amounts of the gel remain in the hair making it sticky, but the gel comes out easily when your child's hair is washed. For all procedures, your child may feel uncomfortable in a new situation and an unfamiliar setting.

Potential Benefits:

As we will send you letters describing all results, you will be aware of any colour vision or general visual processing problems your child may have. If we identify a problem on any of the tests, we will share this information with you and provide recommendations for improvement. Knowing a child experiences vision problems may be helpful and useful in educational planning. For example, if a child is identified as being colour blind, he or she will be able to learn to use other cues to detect differences among colours.

Society in general also benefits from your participation in this study. With greater understanding on the relationship between maternal thyroid levels and fetal neurodevelopment, core deficits and difficulties your child may experience associated with thyroid hormone insufficiency and factors

contributing to these deficits can be identified. The knowledge gained will have important implications for potential treatment and intervention and may help guide future research.

Confidentiality:

Confidentiality will be respected and no information that reveals the identity of you or your child will be released or published without your consent. In this study, your infant will be assigned an ID number and his/her name will not be used in the research. The results of the tests described above will be used for research purposes only in the context of this study. We would need your permission and signed consent to send these test scores to another professional involved in your care. We will pass on raw scores only to persons involved in the care of your child. We recommend that a registered psychologist or physician interpret the results. We will record all information for statistical analysis so that scores and names cannot be matched. For your information, the research consent form will be inserted in the patient health record. At the end of the study, we will provide you with a report that interprets the findings for you.

Reimbursement:

We will reimburse you for any transportation and/or parking costs that are incurred from participating in this study.

Participation:

Your participation in this project is voluntary. If you choose not to participate in the study, your family will continue to have access to quality care at The Hospital for Sick Children. If you choose on behalf of your child to participate, you can withdraw your child from the study at any time. Again, you and your family will continue to have access to quality care at The Hospital for Sick Children.

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