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My46 Trait Profile

Niemann-Pick disease Type C

Niemann-Pick disease type C is a genetic condition characterized by the body's inability to break down cholesterol and certain fats. It is caused by mutations in the NPC1 and NPC2 genes called GALT that makes the galactose-1-phosphate uridyltransferase protein.

Characteristics of Niemann-Pick disease Type C

Niemann-Pick disease type C (NPC) is a very rare genetic condition (1 in 150,000 people). Symptoms usually appear in early childhood, although milder, later-onset (i.e., adolescence or adulthood) disease is possible. Its symptoms vary widely, but usually include yellowish skin (jaundice); increasing clumsiness, weak muscles, lack of coordination, and movement disorders (ataxia); and seizures. Individuals with NPC often cannot look up (impaired vertical gaze). Other features seen in NPC include an enlarged liver and spleen (hepatosplenomegaly), confusion, psychiatric problems, and inability to swallow.

Diagnosis/Testing

Because NPC is such a rare disease and signs of NPC are so variable, diagnosis may be missed or delayed. Individuals with NPC have a change or mutation in either the NPC1 (95%) or NPC2 (5%) genes. These genes encode proteins that are responsible for moving cholesterol and lipids (certain kinds of fats) in and out of cells. Our bodies need cholesterol and lipids to make cell membranes and some hormones. Mutations in the NPC1 or NPC2 genes disrupt the cell's ability to move cholesterol and lipids in and out of cells, causing them to build up in brain, spinal cord, and liver cells.

Management/Surveillance

Management of symptoms may include medication to control seizures and tremors, psychiatric problems, and movement problems. Treatment also involves physical, speech, occupational, and feeding therapies. Because difficulty with swallowing is a common feature in NPC, when possible, medications that cause excess salivation are avoided.

Mode of inheritance

NPC is inherited in an autosomal recessive pattern. This means that an individual has to inherit two mutations (i.e., one from each parent) to be affected with NPC. If both parents are carriers of a mutation, they have a 1 in 4 (25%) chance with each pregnancy of having a child with NPC.

Risk to family members

Parents of a child with NPC are carriers of NPC. If a sibling of a child with NPC is unaffected, he/she has a 2 in 3 (or 66%) chance of being a carrier of NPC.

Special considerations

None

Resources

National Niemann-Pick Disease Foundation
http://www.nnpdf.org
Ara Parseghian Medical Research Foundation
http://www.parseghian.org
Niemann-Pick Disease Group – UK
http://www.niemannpick.org.uk
Genetics Home Reference: Niemann-Pick disease
http://ghr.nlm.nih.gov/condition/niemann-pick-disease

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