Familial encephalopathy with neuroserpin inclusion bodies

Familial encephalopathy with neuroserpin inclusion bodies (FENIB) is a disorder that causes progressive dysfunction of the brain (encephalopathy). It is characterized by a loss of intellectual functioning (dementia) and seizures. At first, affected individuals may have difficulty sustaining attention and concentrating. They may experience repetitive thoughts, speech, or movements. As the condition progresses, their personality changes and judgment, insight, and memory become impaired. Affected people lose the ability to perform the activities of daily living, and most eventually require comprehensive care.

The signs and symptoms of FENIB vary in their severity and age of onset. In severe cases, the condition causes seizures and episodes of sudden, involuntary muscle jerking or twitching (myoclonus) in addition to dementia. These signs can appear as early as a person’s teens. Less severe cases are characterized by a progressive decline in intellectual functioning beginning in a person’s forties or fifties.

Frequency

This condition appears to be rare; only a few affected individuals have been reported worldwide.

Causes

FENIB results from mutations in the SERPINI1 gene. This gene provides instructions for making a protein called neuroserpin, which is found in nerve cells (neurons). Neuroserpin plays a role in the development and function of the nervous system. This protein helps control the growth of neurons and their connections with one another, which suggests that it may be important for learning and memory.

Mutations in the SERPINI1 gene result in the production of an abnormally shaped, unstable form of neuroserpin. Within neurons, defective neuroserpin proteins can attach to one another and form clumps called neuroserpin inclusion bodies or Collins bodies. These clumps disrupt the cells' normal functioning and ultimately lead to cell death. The gradual loss of neurons in certain parts of the brain causes progressive dementia. Researchers believe that a buildup of related, potentially toxic substances in neurons may also contribute to the signs and symptoms of this condition.

Inheritance Pattern

FENIB is inherited in an autosomal dominant pattern, which means one copy of the altered gene in each cell is sufficient to cause the disorder. In many cases, an affected person has a parent with the condition.
Other Names for This Condition

- familial dementia with neuroserpin inclusion bodies
- FENIB

Diagnosis & Management

Genetic Testing Information

- What is genetic testing?
  /primer/testing/genetictesting
- Genetic Testing Registry: Encephalopathy, familial, with neuroserpin inclusion bodies

Research Studies from ClinicalTrials.gov

- ClinicalTrials.gov
  https://clinicaltrials.gov/ct2/results?cond=%22familial+encephalopathy+with
  +neuroserpin+inclusion+bodies%22

Other Diagnosis and Management Resources

- MedlinePlus Encyclopedia: Dementia
  https://medlineplus.gov/ency/article/000739.htm
- MedlinePlus Encyclopedia: Seizures
  https://medlineplus.gov/ency/article/003200.htm

Additional Information & Resources

Health Information from MedlinePlus

- Encyclopedia: Dementia
  https://medlineplus.gov/ency/article/000739.htm
- Encyclopedia: Seizures
  https://medlineplus.gov/ency/article/003200.htm
- Health Topic: Degenerative Nerve Diseases
  https://medlineplus.gov/degenerativenervediseases.html
- Health Topic: Dementia
  https://medlineplus.gov/dementia.html

Genetic and Rare Diseases Information Center

- Familial encephalopathy with neuroserpin inclusion bodies
  https://rarediseases.info.nih.gov/diseases/10037/familial-encephalopathy-with-
  neuroserpin-inclusion-bodies
Additional NIH Resources

- National Institute of Neurological Disorders and Stroke: Encephalopathy Information Page
  https://www.ninds.nih.gov/Disorders/All-Disorders/Encephalopathy-Information-Page

Educational Resources

- MalaCards: encephalopathy, familial, with neuroserpin inclusion bodies
  https://www.malacards.org/card/encephalopathy_familial_with_neuroserpin_inclusion_bodies

- Merck Manual Consumer Version: Overview of Delirium and Dementia

- Orphanet: Familial encephalopathy with neuroserpin inclusion bodies
  https://www.orpha.net/consor/cgi-bin/OC_Exp.php?Lng=EN&Expert=85110

Patient Support and Advocacy Resources

- Alzheimer's Association
  https://www.alz.org/

- Family Caregiver Alliance
  https://www.caregiver.org/health-issues/dementia

Scientific Articles on PubMed

- PubMed
  https://www.ncbi.nlm.nih.gov/pubmed?term=%28%28familial+encephalopathy+%5BTIAB%5D+AND+neuroserpin+%5BTIAB%5D%29+OR+%28fenib%5BTIAB%5D%29+AND+english%5Bla%5D+AND+human%5Bmh%5D+AND+%22last+3600+days%22+AND+neuroserpin+inclusion+bodies

Catalog of Genes and Diseases from OMIM

- ENCEPHALOPATHY, FAMILIAL, WITH NEUROSERPIN INCLUSION BODIES
  http://omim.org/entry/604218

Sources for This Summary


Reprinted from Genetics Home Reference:

Reviewed: April 2009
Published: November 12, 2019

Lister Hill National Center for Biomedical Communications
U.S. National Library of Medicine
National Institutes of Health
Department of Health & Human Services