Hepatic veno-occlusive disease with immunodeficiency

Hepatic veno-occlusive disease with immunodeficiency (also called VODI) is a hereditary disorder of the liver and immune system. Its signs and symptoms appear after the first few months of life.

Hepatic veno-occlusive disease is a condition that blocks (occludes) small veins in the liver, disrupting blood flow in this organ. This condition can lead to enlargement of the liver (hepatomegaly), a buildup of scar tissue (hepatic fibrosis), and liver failure.

Children with VODI are prone to recurrent infections caused by certain bacteria, viruses, and fungi. The organisms that cause infection in people with this disorder are described as opportunistic because they ordinarily do not cause illness in healthy people. These infections are usually serious and may be life-threatening. In most people with VODI, infections occur before hepatic veno-occlusive disease becomes evident.

Many people with VODI live only into childhood, although some affected individuals have lived to early adulthood.

Frequency

VODI appears to be a rare disorder; approximately 20 affected families have been reported worldwide. Most people diagnosed with the condition have been of Lebanese ancestry. However, the disorder has also been identified in several individuals with other backgrounds in the United States and Italy.

Causes

VODI results from mutations in the \( SP110 \) gene. This gene provides instructions for making a protein called SP110 nuclear body protein, which is involved in the normal function of the immune system. This protein likely helps regulate the activity of genes needed for the body’s immune response to foreign invaders (such as viruses and bacteria).

Mutations in the \( SP110 \) gene prevent cells from making functional SP110 nuclear body protein, which impairs the immune system’s ability to fight off infections. It is unclear how a lack of this protein affects blood flow in the liver.

Inheritance Pattern

This condition is inherited in an autosomal recessive pattern, which means both copies of the gene in each cell have mutations. The parents of an individual with an autosomal recessive condition each carry one copy of the mutated gene, but they typically do not show signs and symptoms of the condition.
Other Names for This Condition

- familial veno-occlusive disease with immunodeficiency
- hepatic venoocclusive disease with immunodeficiency
- veno-occlusive disease and immunodeficiency syndrome
- VODI

Diagnosis & Management

Genetic Testing Information

- What is genetic testing?
  /primer/testing/genetictesting
- Genetic Testing Registry: Hepatic venoocclusive disease with immunodeficiency

Other Diagnosis and Management Resources

- GeneReview: Hepatic Veno-Occlusive Disease with Immunodeficiency
  https://www.ncbi.nlm.nih.gov/books/NBK1271

Additional Information & Resources

Health Information from MedlinePlus

- Health Topic: Immune System and Disorders
  https://medlineplus.gov/immunesystemanddisorders.html
- Health Topic: Liver Diseases
  https://medlineplus.gov/liverdiseases.html

Genetic and Rare Diseases Information Center

- Hepatic venoocclusive disease with immunodeficiency

Additional NIH Resources

- National Institute of Allergy and Infectious Diseases: Primary Immune Deficiency Diseases
Educational Resources

- MalaCards: hepatic venoocclusive disease with immunodeficiency
  https://www.malacards.org/card/hepatic_ve
  noocclusive_disease_with_immunodeficiency

  https://www.merckmanuals.com/home/liver-and-gallbladder-disorders/blood-vessel-
  disorders-of-the-liver/veno-occlusive-disease-of-the-liver

- Orphanet: Hepatic veno-occlusive disease-immunodeficiency syndrome
  https://www.orpha.net/consor/cgi-bin/OC_Exp.php?Lng=EN&Expert=79124

Patient Support and Advocacy Resources

- American Liver Foundation
  https://liverfoundation.org/

- Children's Liver Disease Foundation (UK)
  https://childliverdisease.org/

- Immune Deficiency Foundation
  https://primaryimmune.org/

- International Patient Organisation for Primary Immunodeficiencies
  https://ipopi.org/

- Jeffrey Modell Foundation
  http://www.info4pi.org/

- Resource list from the University of Kansas Medical Center: Immune Deficiency Conditions
  http://www.kumc.edu/gec/support/immune.html

Clinical Information from GeneReviews

- Hepatic Veno-Occlusive Disease with Immunodeficiency
  https://www.ncbi.nlm.nih.gov/books/NBK1271

Scientific Articles on PubMed

- PubMed
  disease%5BTIAB%5D%29+AND+%28immunodeficiency%5BTIAB%5D%29%29
  +AND+english%5Bla%5D+AND+human%5Bmh%5D+AND+human%22%22last+3600+days
  %22%5Bdp%5D

Catalog of Genes and Diseases from OMIM

- HEPATIC VENOOCCLUSIVE DISEASE WITH IMMUNODEFICIENCY
  http://omim.org/entry/235550
Sources for This Summary

  Citation on PubMed: https://www.ncbi.nlm.nih.gov/pubmed/17510920

  Citation on PubMed: https://www.ncbi.nlm.nih.gov/pubmed/16648851

  Citation on PubMed: https://www.ncbi.nlm.nih.gov/pubmed/20301448

Reprinted from Genetics Home Reference:

Reviewed: January 2009
Published: October 16, 2018

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