Condition: Adrenoleukodystrophy/peroxisomal disorders

Inheritance:

X-linked recessive.

Genetic etiology:

ALD results from mutation in *ABCD1* gene encoding ATP-binding cassette subfamily D, member 1. This protein is expressed in peroxisome membrane. Other disorders involving the peroxisome are due to mutations that disrupt other peroxisomal enzymes, or peroxisomal function in general.

Frequency:

Approximately 1/20,000.

Clinical features:

There is a range of phenotypic expression, even with the same family. In the childhood form, affected boys manifest progressive learning and behavioral problems, seizures, impaired adrenocortical function. Progression of neurological symptoms leads to complete disability and eventual death. A later onset form, referred to as adrenomyeloneuropathy, prevents in the third decade or later with progressive gait disorder, loss of sphincter control, and adrenocortical dysfunction. Other variations are seen, such as isolated adrenal insufficiency. Diagnosis is based on MRI finding of symmetrical enhanced T2 signal in white matter in parieto-occipital region and finding of elevated plasma very long chain fatty acids.

Management:

Corticosteroid replacement therapy; supportive care; bone marrow transplantation has been used in some cases.

Genetic counseling:

Based on X-linked recessive inheritance; at-risk family members should have plasma very long chain fatty acid testing; genetic testing is available for detection of some mutations.

Human Genetics and Genomics, Fourth Edition. Bruce R. Korf and Mira B. Irons.