<table>
<thead>
<tr>
<th><strong>Disease Name:</strong></th>
<th>3-METHYLGLUTACONIC ACIDURIA TYPE III (OPTIC ATROPHY PLUS SYNDROME; IRAQI-JEWISH 'OPTIC ATROPHY PLUS'; MGA, TYPE III; COSTEFF SYNDROME)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Classification:</strong></td>
<td>Organic aciduria</td>
</tr>
<tr>
<td><strong>Genetic Information:</strong></td>
<td></td>
</tr>
<tr>
<td>Inheritance:</td>
<td>Autosomal recessive</td>
</tr>
<tr>
<td>Population Incidence:</td>
<td>Unknown- only been diagnosed among Jewish kindred</td>
</tr>
<tr>
<td>Ethnic Incidence:</td>
<td>1:10,000 among Iraqi Jewish kindred</td>
</tr>
<tr>
<td>Gene &amp; Location:</td>
<td>OPA3 gene on 19q12.2-13.3</td>
</tr>
<tr>
<td>Common Mutation:</td>
<td>A G-to-C founder mutation has been identified</td>
</tr>
<tr>
<td>OMIM #:</td>
<td>#258501; *606580</td>
</tr>
<tr>
<td><strong>Disease Information:</strong></td>
<td></td>
</tr>
<tr>
<td>Symptom Onset:</td>
<td>Presents in infants</td>
</tr>
<tr>
<td>Symptoms:</td>
<td>The disease presents with infantile bilateral optic atrophy, choreoathetosis, spastic paraparesis, cerebellar ataxia and nystagmus. Some patients have mental retardation. The course of the disease is non-progressive beyond childhood. Most develop spastic paraparesis by the second decade of life. About one-half of patients have non-progressive ataxia. Some patients have been noted to have dysarthria. The life span is normal.</td>
</tr>
<tr>
<td>Physical Findings:</td>
<td>No dysmorphisms.</td>
</tr>
<tr>
<td>Treatment:</td>
<td>There are no effective treatments. Coenzyme Q10 therapy has been tried without any change in the clinical status.</td>
</tr>
<tr>
<td>Natural History without treatment:</td>
<td>Spastic paraparesis with blindness and possible mental retardation. Possibly some ataxia.</td>
</tr>
<tr>
<td>Natural History with treatment:</td>
<td>Same as for untreated group</td>
</tr>
<tr>
<td><strong>Metabolic Information:</strong></td>
<td></td>
</tr>
<tr>
<td>Missing Enzyme &amp; Location:</td>
<td>The basic enzyme defect is unknown</td>
</tr>
<tr>
<td>MS/MS profile:</td>
<td>C5-OH (3-hydroxyisovaleryl carnitine) - elevated</td>
</tr>
<tr>
<td>Prenatal testing:</td>
<td>Possible mutation analysis for at risk pregnancies.</td>
</tr>
</tbody>
</table>
Prepared for the NW Regional Newborn Screening Program by Sara Copeland MD, Judith Tuerck RN MS and Lorinda Paradise at OHSU in Portland, OR.

**References:**


45. Millington DS. “Interpretation and follow-up of abnormal newborn screening results from MS/MS”, 2004 Newborn Screening & Genetics Testing Symposium, May 3, 2004, Atlanta, GA


49. OMIM- Online Mendelian Inheritance in Man; 3-@METHYLGLUTACONICACIDURIA, TYPE I- #250950.

50. OMIM- Online Mendelian Inheritance in Man; 3-@METHYLGLUTACONICACIDURIA, TYPE II- BARTH SYNDROME; BTHS- #302060.

51. OMIM- Online Mendelian Inheritance in Man; 3-@METHYLGLUTACONICACIDURIA, TYPE III- #258501.
52. OMIM- Online Mendelian Inheritance in Man; 3-@METHYLGLUTACONICACIDURIA, TYPE IV-250951.


