FAOD IN FOCUS

THE POTENTIAL URGENCY OF LC-FAOD

Long-Chain Fatty Acid Oxidation Disorders

CPT I • CACT • CPT II • VLCAD • TFP • LCHAD

Enzyme deficiencies

THE DISRUPTION

Unbalanced metabolism impairs energy production in LC-FAOD

Enzyme deficiencies result in an **imbalance between anaplerosis and cataplerosis**, sometimes leading to the accumulation of toxic metabolites. This **disrupts downstream processes** such as gluconeogenesis, ketogenesis, and lipogenesis, compromising energy homeostasis.[1-3]

Multisystemic signs and symptoms can evolve over time and may differ depending on when they appear.[2,4,5]

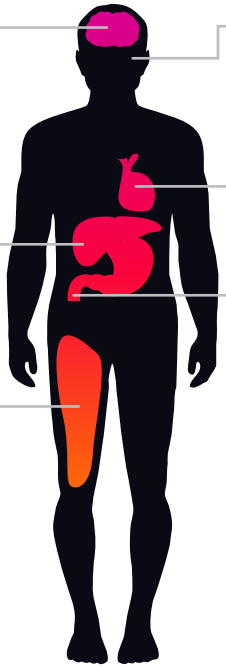
THE IMPACT

Signs and symptoms of LC-FAOD typically manifest in **tissues that rely on energy production via fatty acid oxidation**, such as the liver, heart, and skeletal muscle.[2]

Neurological[6]
- Developmental delay
- Impaired quality of life
- Peripheral neuropathy

Hepatic[6]
- Hypoketotic hypoglycemia
- Hepatic dysfunction
- Chronic liver dysfunction

Skeletal myopathy[6]
- Hypotonia
- Myalgia
- Exercise intolerance
- Different degrees of rhabdomyolysis



Retinopathy (TFP/LCHAD deficiency)[6]
- Progressive retinal dysfunction
- Decreases in color, low-light, and central vision

Cardiac[6]
- Hypertrophic and/or dilated cardiomyopathy
- Pericardial effusion
- Heart failure
- Arrhythmia
- Sudden death

Gastrointestinal[6]
- Nausea
- Gastrointestinal distress
- Lack of appetite

Adapted from Merritt et al, 2020.[6]

Other signs and symptoms associated with some LC-FAOD[6]
- Maternal hemolysis, elevated liver enzymes, and low platelets **(HELLP)** syndrome
- Maternal acute fatty liver of pregnancy **(AFLP)**
- Sudden infant death syndrome **(SIDS)**

Scan to listen to an LC-FAOD geneticist describe the serious and unpredictable impact of the disease.

CACT=carnitine-acylcarnitine translocase; CPT=carnitine palmitoyltransferase; LCHAD=long-chain 3-hydroxyacyl-CoA dehydrogenase; TFP=trifunctional protein; VLCAD=very long-chain acyl-CoA dehydrogenase.

FAOD IN FOCUS

ADDRESSING THE UNPREDICTABLE AND PRECIPITOUS IMPACT OF LC-FAOD

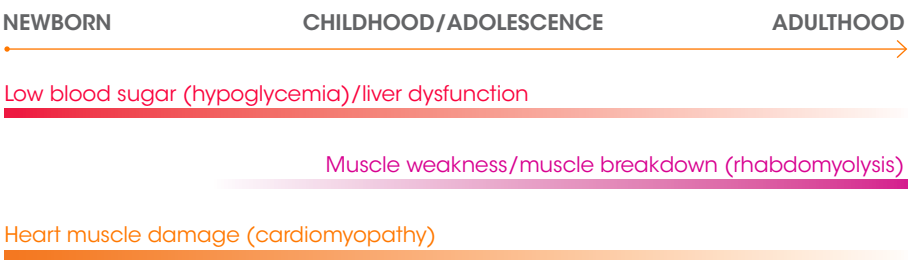
THE POTENTIAL URGENCY

LC-FAOD are a group of **rare, life-threatening** autosomal recessive disorders.[2,7-9]

- Patients face **acute episodes** and **chronic symptoms** that lead to difficult challenges, substantial medical burdens, and **potentially high mortality rates**[1,2,10-13]

"Symptom onset can occur **at any time**, from early infancy onwards, placing patients at serious risk of **life-threatening episodes of spontaneous acute decompensation**."[6]

A SPECTRUM OF PRESENTATION[2,4,5]



Pediatric mortality among children with LC-FAOD was up to 29% in the United States, even with newborn screening.[14,15]

THE CONFIRMATION

Onset of LC-FAOD signs and symptoms typically occurs during the neonatal period and infancy.[10] However, some patients with slower disease progression may **not be diagnosed** or are **diagnosed at a later age**.[16]

Additionally, adolescent and adult patients may not have received newborn screening for LC-FAOD.[17,18]

Confirmatory genetic testing may be appropriate for anyone with a suspected LC-FAOD diagnosis based on clinical symptoms, laboratory findings, or a combination of both.[2]

Scan the code to find useful LC-FAOD resources for you and your patients.

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