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FAMILIAL CHYLOMICRONEMIA SYNDROME (FCS)

What is FCS?

FCS is a rare, genetic, life-threatening disease that prevents the body from digesting fats and severely impairs the body's ability to remove triglycerides from the bloodstream.[1,2]

Healthy Adults **<150** mg/dL | People Living with FCS **≥880** mg/dL

FCS is a form of **severe hypertriglyceridemia (sHTG),** a condition in which a person's triglyceride levels are dangerously high, typically 500 mg/dL or above.[6]

Although a healthy triglyceride level for adults is typically below 150 mg/dL, people living with FCS often have levels greater than or equal to 880 mg/dL.[5]

Triglycerides are a type of fat that the body uses as an important source of energy.[3,4] However, this condition leads to the build-up of large triglyceride-containing particles called **chylomicrons** in the blood, which can result in severe health complications, including potentially fatal acute pancreatitis (AP).[1,5]

It is estimated there are greater than 3 million people living with sHTG in the U.S.[7]

It is estimated that between 1-13 in a million people are living with FCS.[8,9,10]

What causes FCS?

FCS is caused by genetic changes (also known as disease-causing variants or mutations) in one of several genes.

FCS is caused by mutations in several genes that impact the function of a protein called **lipoprotein lipase (LPL),** which is essential for removing triglycerides from the blood.

About **eight out of 10** cases of FCS are due to genetic changes in the LPL gene itself.[11] Ongoing research continues to identify additional variants linked to FCS.

What are the signs and symptoms?

In people with FCS, lack of LPL function means their body cannot break down fats, leading to the build up of chylomicrons.[5]

Signs and symptoms include:[5,12]

- Severe, frequent stomach and back pain
- Blood that appears fatty or milky white after it is drawn
- An enlarged liver or spleen, known as hepatosplenomegaly
- Bloating and indigestion
- Yellowish, waxy-like deposits of fatty material in the skin, called xanthomas
- Depression, anxiety, fatigue, or memory loss
- Fatty deposits in the retina of the eye, known as lipemia retinalis
- Acute pancreatitis (AP)

What is the disease burden?

FCS puts people at **high risk of AP** – painful inflammation of the pancreas – which often results in hospitalization and can be life-threatening.[5]

In severe cases, vital organs such as the heart, lungs, kidneys, and pancreas, can be damaged.[13] In addition to the physical burden, FCS can be a major source of psychological and financial stress, which can cause people to feel overwhelmed and experience a **significant impact on their quality of life.**[12]

For example:[12]

- FCS may **stop people from participating** in social activities or maintaining steady work.
- FCS can **cause anxiety** about relationships, **guilt**, and **disappointment** about missing out on events or activities.
- It can also **create frustration and exhaustion** from managing the disease.

People with FCS can have difficulty adhering to the highly restrictive diets that are necessary to manage their condition, which can add to emotional distress, social isolation, or feelings of uncertainty or hopelessness.

Consuming even a small amount of fat can cause someone with FCS to need to be hospitalized.[5]

How is FCS diagnosed?

Because FCS is so rare, it can be **hard to recognize and identify.** This means many people with the condition are left without a complete clinical diagnosis or the appropriate help for long-term care.[5]

In many cases, FCS is **typically not diagnosed until an individual has been hospitalized** for AP, at which point their disease is considered more severe.

A diagnosis of FCS can be **suspected based on physical signs,** including triglyceride levels greater than or equal to 880 mg/dL, and unresponsiveness to standard triglyceride-lowering therapies without other causes.

As a genetic disease, **FCS should be genetically identified and validated,** either with a positive genetic test result or as an indeterminate test result that is confirmed by a doctor's diagnosis using established clinical methods. Genetic testing for FCS is available and can help confirm a diagnosis earlier and expedite the path to appropriate treatment.

How can people manage their FCS?

Currently, there are no U.S. FDA-approved therapies for the treatment of FCS.

Due to the absence of LPL activity in people with FCS, medicines traditionally used to lower triglyceride levels are often ineffective and do not reduce triglyceride levels or decrease the risk of AP.[14,15]

People with FCS rely on an extremely strict lifestyle and dietary management that involves **limiting their daily fat intake to less than 15 to 20 grams (or less than 10% to 15% of their daily calories).**[12] For context, this is equivalent to approximately one tablespoon of olive oil.

Researchers are currently studying investigational medicines with the potential to lower triglyceride levels, and the risk of other disease complications, in people with FCS and sHTG.

For more information about FCS, please visit **www.KnowYourTGs.com** or the FCS Foundation at **www.LivingWithFCS.org**.

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