

HAEMOCHROMATOSIS INFORMATION

Haemochromatosis is a common hereditary condition affecting approximately 1 in 200 of the population. The majority of people with hereditary haemochromatosis are descended from a common Celtic ancestor 60-70 generations ago. Most people affected by genetic haemochromatosis carry two copies of mutation (C282Y) that disrupts the haemochromatosis (HFE) gene function on chromosome 6. HFE protein is expressed on the surface of many cells including duodenal crypt cells and macrophages and affects their function. It is involved in controlling the levels of the central iron regulator hepcidin and is involved in body iron homeostasis. Clinically significant iron overload develops in some people who are homozygous (have 2 copies) for the abnormal gene. Heterozygotes who have a single copy of this particular genetic abnormality are not usually affected by iron overload although iron stores may be slightly higher than usual in the population. Iron saturation in these individuals is typically normal.

Individuals with haemochromatosis have excess iron deposited in liver, pancreas, heart, endocrine glands and joints. With early diagnosis and treatment life expectancy is similar to the rest of the population. Early symptoms are often non-specific and may include fatigue, abdominal pain, arthralgia. Other manifestations include diabetes, liver inflammation and cirrhosis, sexual disorders, cardiomyopathy, neuropsychiatric disorders and skin bronzing. Hepatocellular carcinoma may complicate cirrhosis in those with advanced liver disease.

There is a broad spectrum of clinical presentation in homozygotes and some may have no evidence of iron overload.

Rarely, an individual can be negative for C282Y mutation but have a clinical picture indistinguishable from genetic haemochromatosis. Causes of secondary overload should be considered and excluded e.g. cirrhosis, alcohol abuse, viral hepatitis, or iron loading anaemias. The cause should be identified and referral for appropriate specialist investigation may be required. If iron-induced tissue injury is present, or likely to be present, the patient should be considered for venesection therapy. Other polymorphisms have been found to affect the gene encoding the HFE protein. One of these, the H63D allele may occasionally cause mild iron overload when it is present as the second allele in persons who are heterozygous for C282Y (compound heterozygotes).

Diagnostic Guidelines for Haemochromatosis

- Transferrin saturation (after overnight fast) >55% in men > 50 % women
- Elevated serum ferritin: associated with increased transferrin saturation
- Gene Test: Homozygosity of the C282Y mutation in the HFE gene, or compound heterozygote H63D and C282Y.
- Liver Biopsy: This is sometimes recommended by Gastroenterologists when serum ferritin is over 1500mcg/ml, when there is an LFT disturbance or the HFE Test is negative.

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Treatment

Therapeutic phlebotomy is safe, effective and inexpensive. Each 450mls of blood contains approximately 200-250mg of iron. Typically phlebotomy is performed weekly, fortnightly or monthly until levels stabilise within the required range (20- 50 mcg / L and transferrin saturation below 50%). Individuals who are clinically well and meet all blood donor acceptance criteria may be enrolled as normal blood donors if they wish. Their iron levels however will need to be checked periodically while iron depletion is in progress, and annually when stable after normal iron levels are achieved. Importantly their blood can be used to help patients rather than being discarded . They may be able to attend normal donor sessions rather than the clinic.

General Advice to Patients

- Eat less red meat.
- Do not take mega-dose vitamin C or iron supplements. (A multivitamin without iron is usually safe).
- Drink tea or coffee with iron rich meals as it may decrease iron absorption.
- Minimise alcohol consumption
- Have siblings and adolescent children tested.