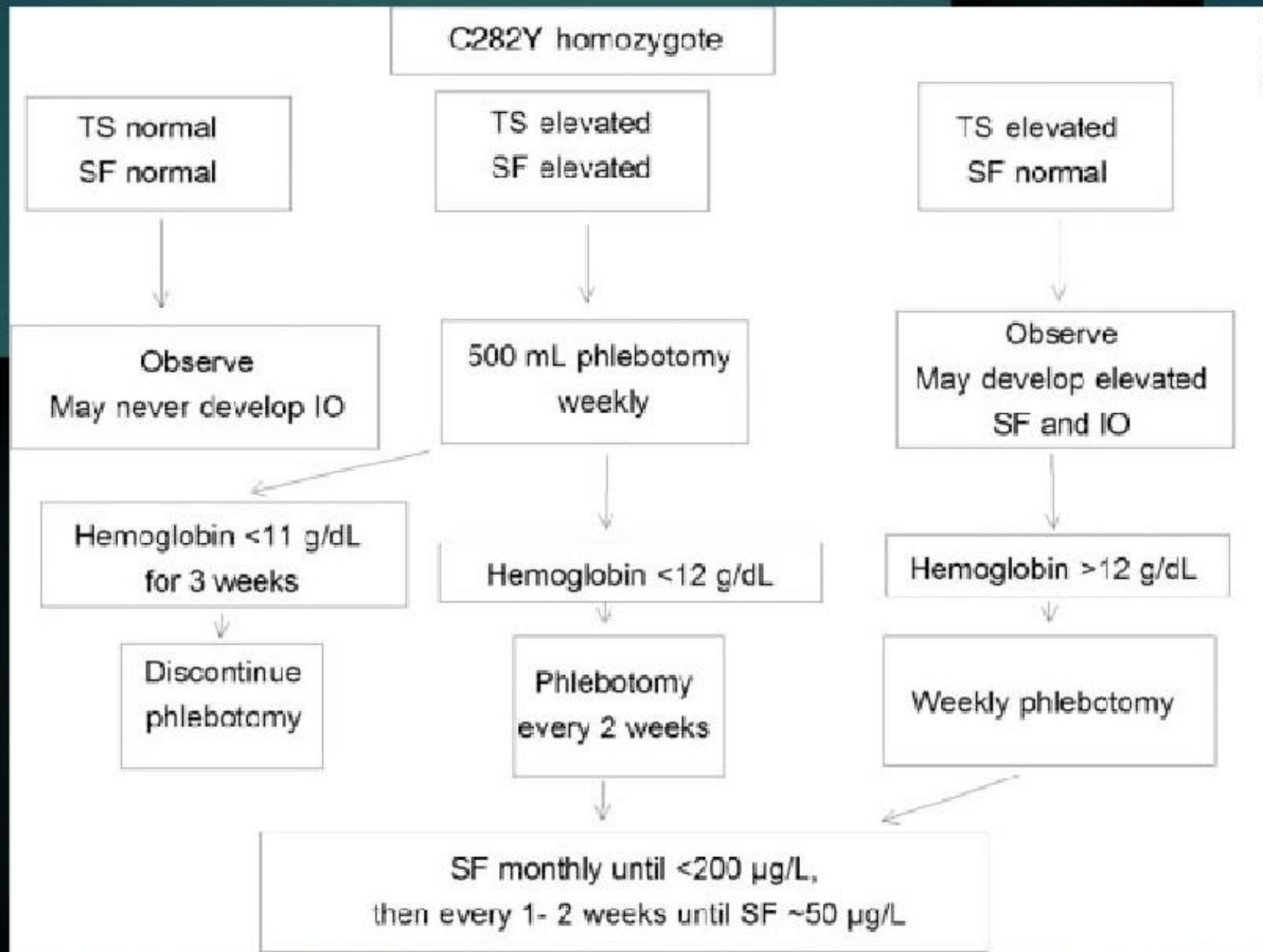


The background is a dark teal color. It features several geometric shapes: a large black rectangle on the left, a large teal circle on the right, a black rectangle in the top right, a red rectangle in the top right, and a black rectangle in the bottom right.

HAEMOCHROMATOSIS

- BY HARI SHANKAR PANDEY



Hemochromatosis

Transferrin saturation >45% for female, >50% for males x2

HFE gene C282Y homozygosity = HFE hemochromatosis
(C282Y/H63D compound heterozygotes or H63D homozygotes with increased ferritin or transferrin saturation-investigate for other causes of hyperferritinemia.
Iron overload development is rare)

Serum ferritin - normal
1 y follow up

Ferritin <1000 µg/L

Ferritin >1000 µg/L

Hemoglobin >12 g/dl
weekly phlebotomy

500 ml phlebotomy
weekly

Assess for cirrhosis
with liver biopsy

Hemoglobin <12 g/dl
phlebotomy every 2 wk.

Hemoglobin <11 g/dl for 3 wk
discontinue phlebotomy

If cirrhosis: AFP
and ultrasound
every 6 mo to
assess for HCC

Serum ferritin monthly until <200 mg/L then every 1-2 wk until ferritin ≤ 50 µg/L

Lifestyle modifications

- Avoid iron supplements
- Limit vitamin C intake to 500 mg po qd
- Consume ethanol and red meat in moderation
- Do not consume raw shellfish

Immunize against
hepatitis A and B

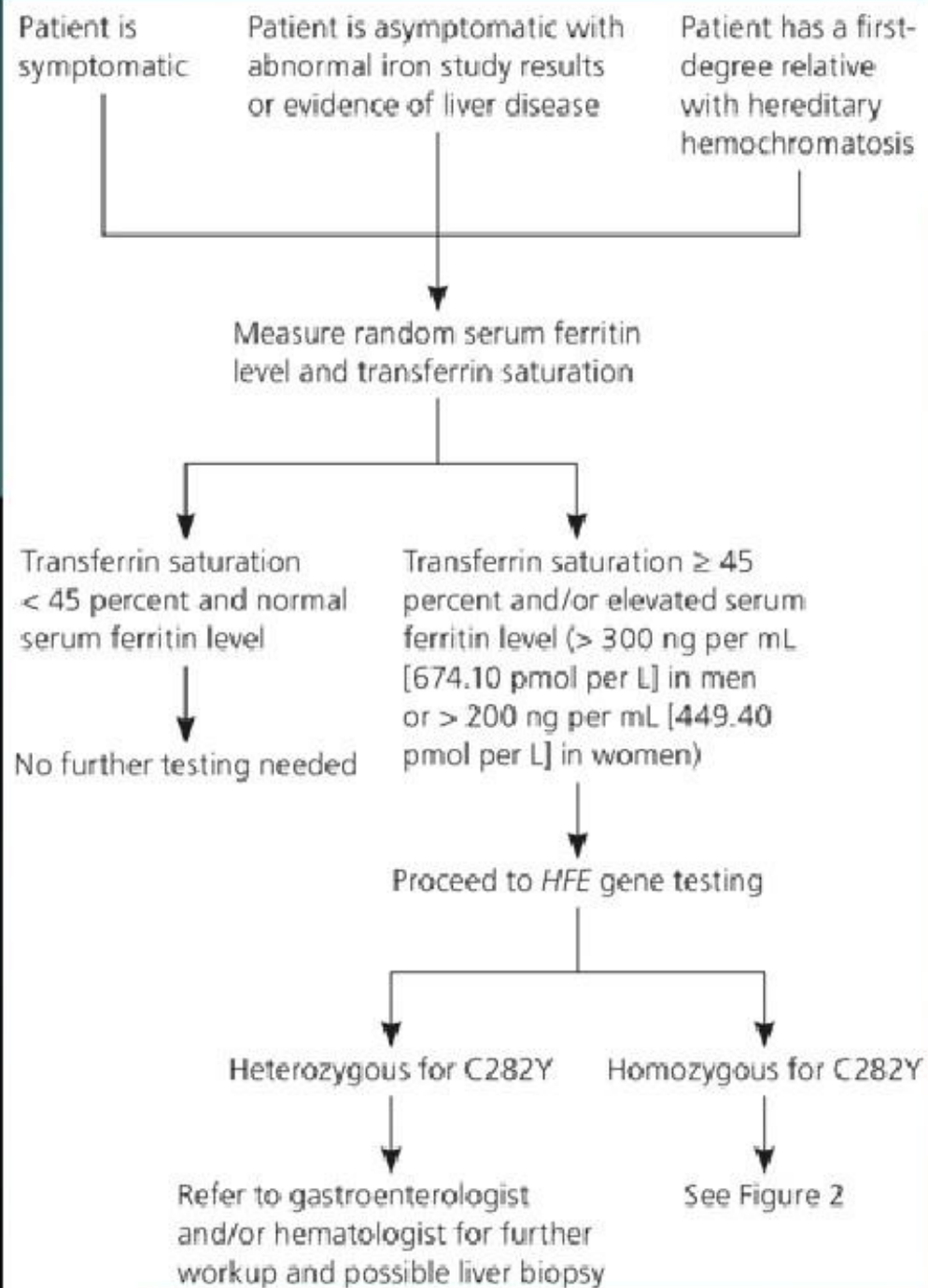
Assess for complications

- Diabetes
- Joint disease
- Hypothyroidism,
- Cardiac disease
- Porphyria cutanea tarda
- Osteoporosis

Patients intolerant to phlebotomy due to anemia - consider
iron chelation therapy although still experimental at this stage

- Deferoxamine* - parentally administered iron chelator
- Deferasirox* - oral iron chelator

*not FDA approved for this indication

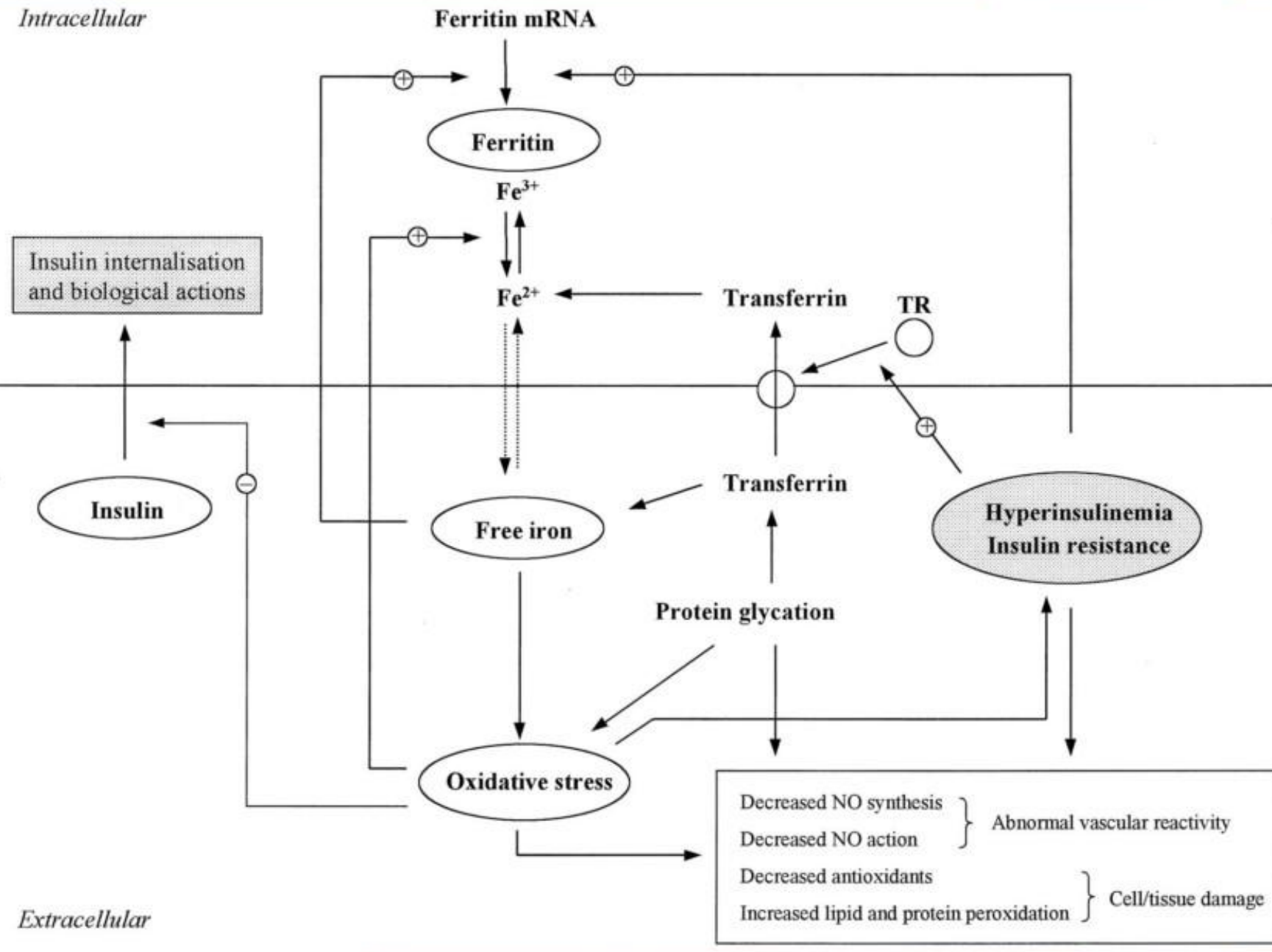


Hemochromatosis Overview

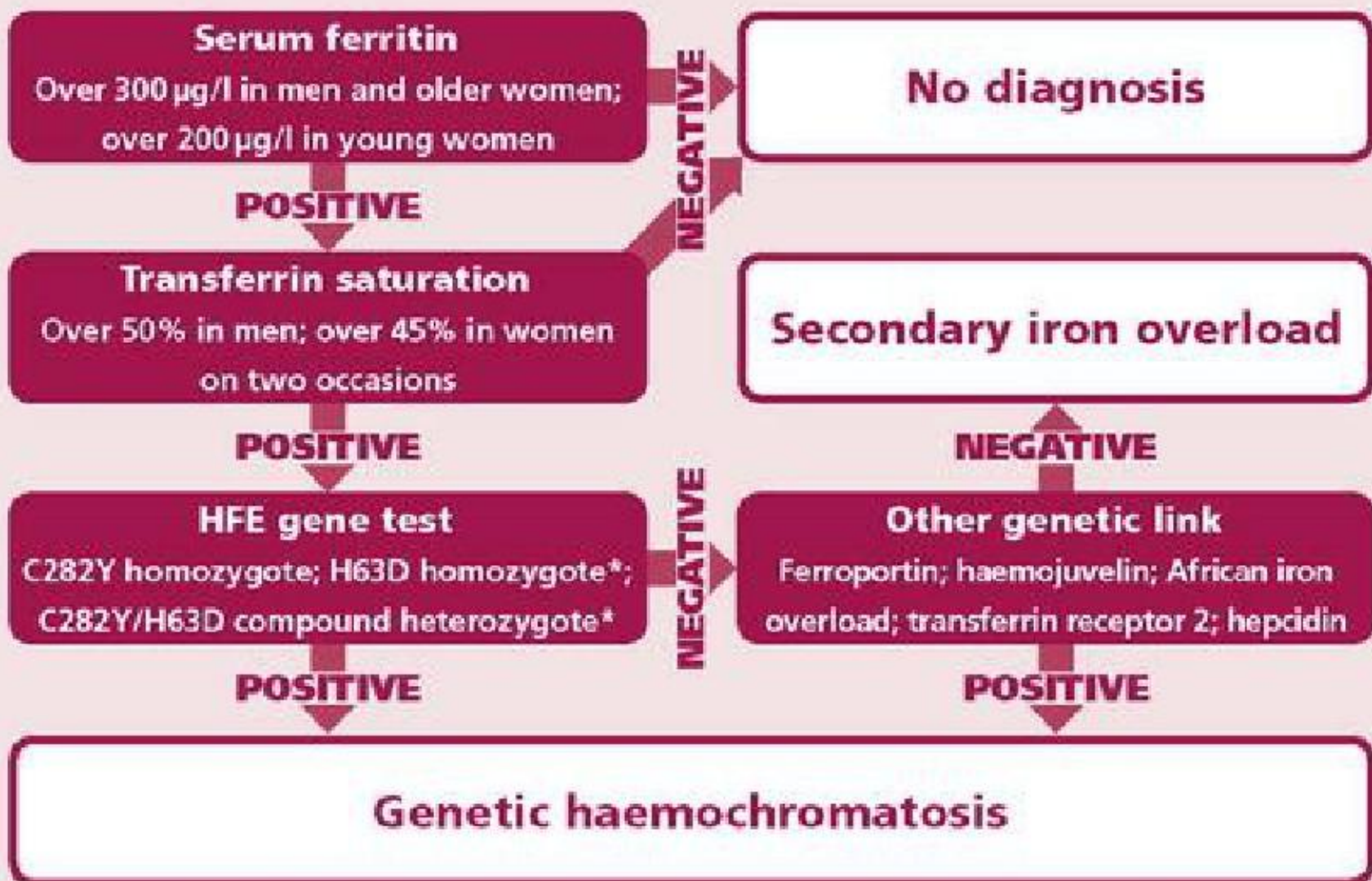
■ History

- ❑ Classic triad described in the 1865 by Trousseau
 - Diabetes, bronze skin, cirrhosis
- ❑ Named “Hemochromatosis” in 1889 by Von Recklinghausen
 - Iron storage and widespread tissue injury
- ❑ Inheritance described in 1935
- ❑ HLA linkage to chromosome 6 identified 1976

Intracellular

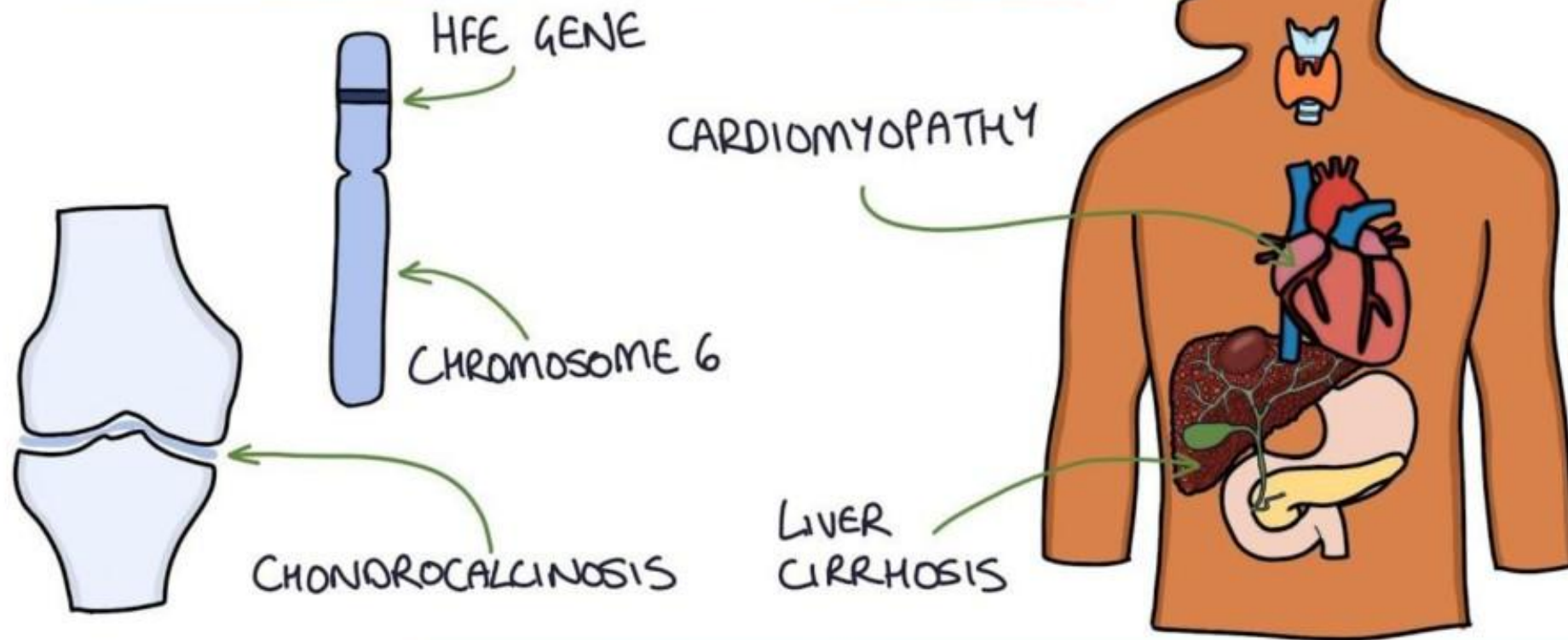


Extracellular



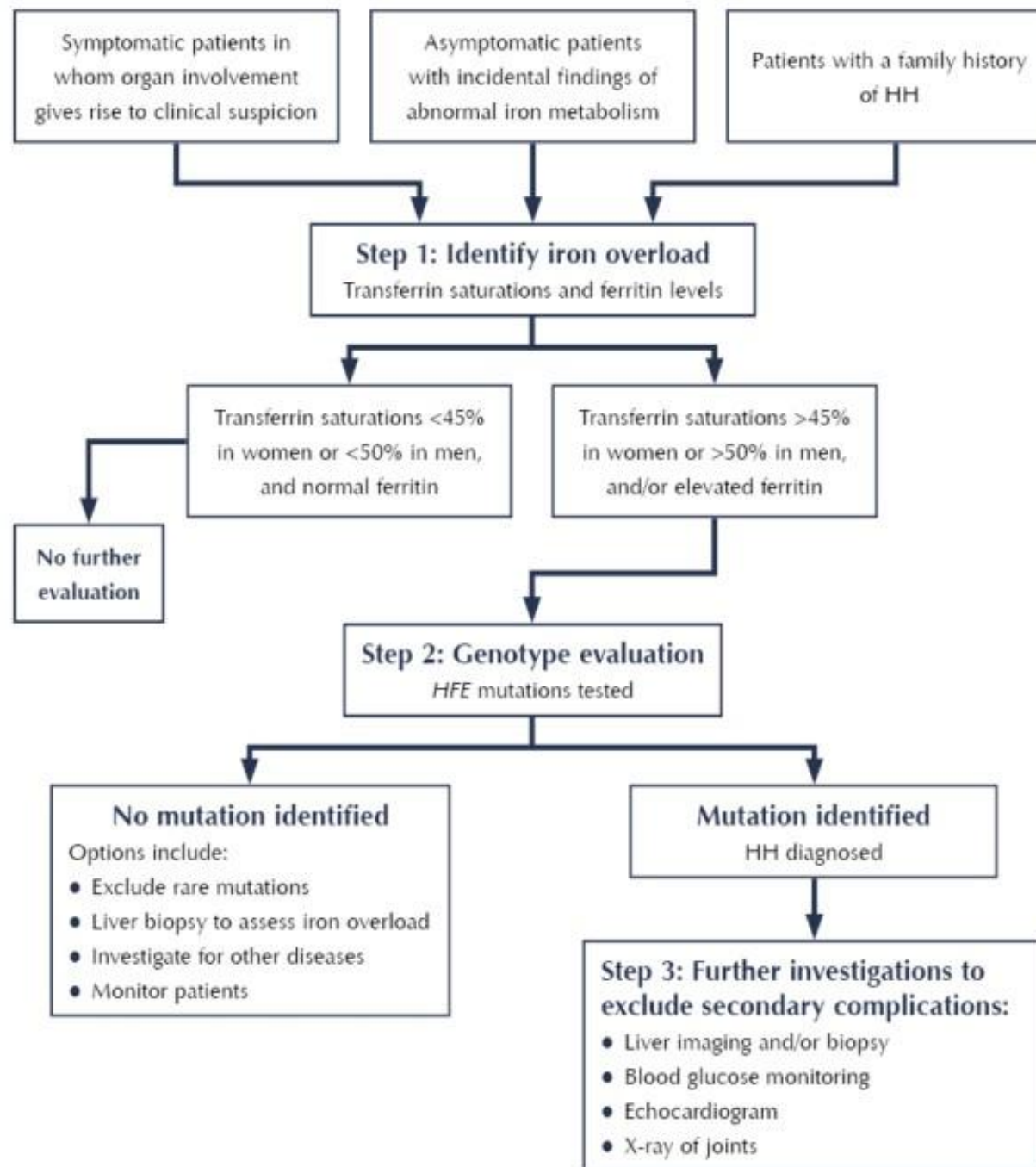
*Rule out causes of secondary iron overload before confirming the cause
as H63D homozygosity or C282Y/H63D compound heterozygosity

HAEMOCHROMATOSIS



Iron Overload or Hemochromatosis treatment

- The most common way to treat iron overload is to reduce the amount of iron in the body. This can be done through diet by eating **foods** low in iron or through the withdrawal of blood. The preferred treatment for reducing iron levels in hemochromatosis patients is called **therapeutic phlebotomy** (**repeated venesection**).



Factors unrelated to APL that affect phenotypic expression

Host factors

Genetic demands, infections, pregnancy
diet, blood loss

Alcohol intake, iron loading, diseases including thalassemias, hepatic porphyrias, infections, nutritional fatty liver, and viral hepatitis

Modifier genes

Genes involving hepcidin, transferrin receptor 2, heparanase, ferroportin, ceruloplasmin, and ferroregulin-1

Genes involved in antioxidant defense, fibrogenesis, and tissue repair

Pathogenic steps and principal biochemical effects

Mutated JAK2

High plasma iron

Elevated transferrin saturation

High tissue iron

Depleted serum ferritin

Organ damage

Serum ferritin >1000 ng/mL; abnormal results on hepatic, glucose, and endocrine tests

Proportion of C282Y homozygotes expressing the indicated abnormality

100%

71%

100%

25%

0%

HFE hemochromatosis

- Caucasian, male, 40–50 years old
- Fatigue, dark skin, arthralgia and/or hepatomegaly
- Elevated TS and SF

TFR2 hemochromatosis

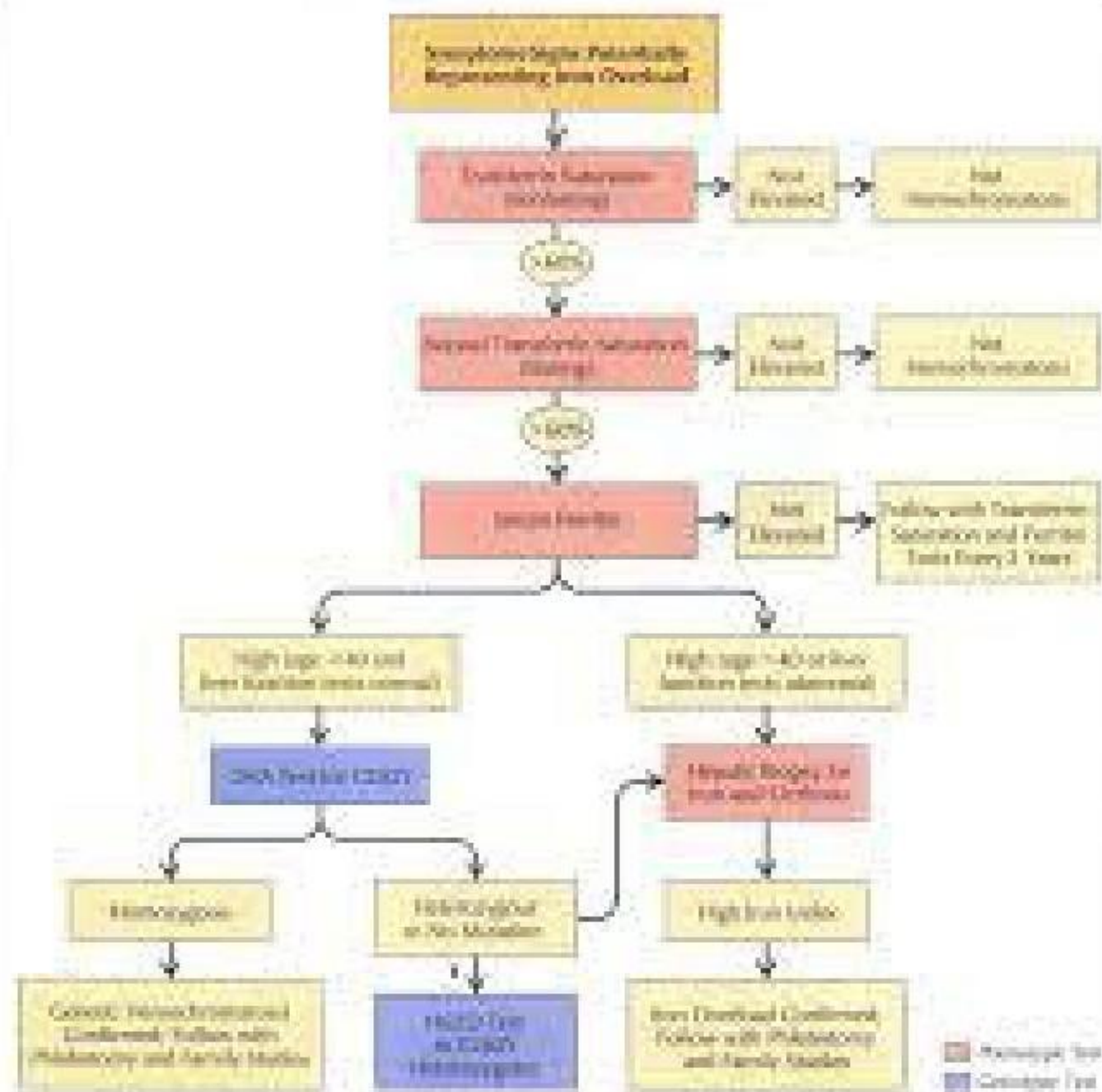
- Caucasian or non-Caucasian, male or female, 30–40 years old
- Cardiomyopathy, endocrinopathy, liver disease
- Elevated TS and SF

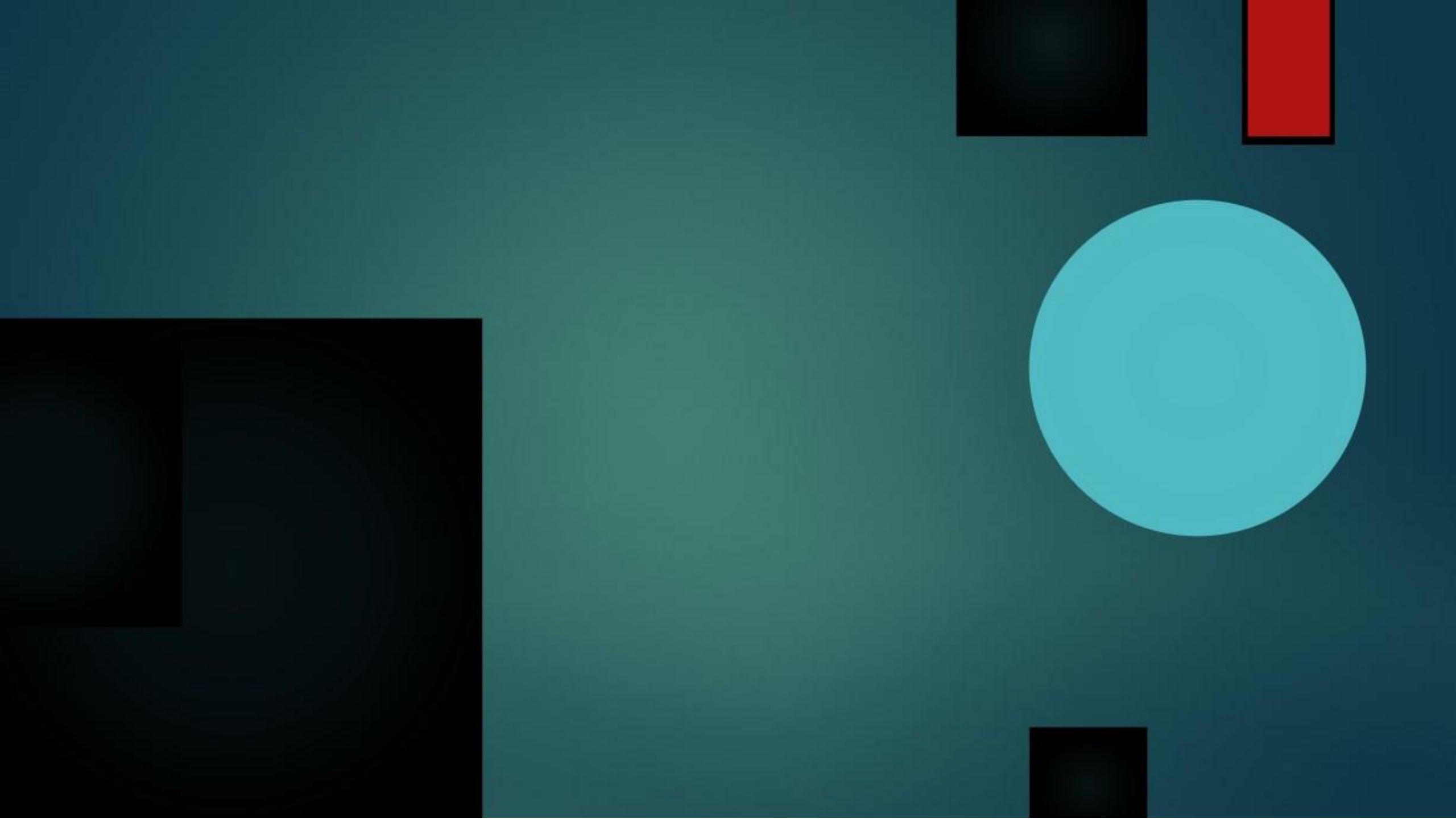
HJV or HAMP hemochromatosis

- Caucasian or non-Caucasian, male or female, 15–20 years old
- Impotence/amenorrhea and/or cardiomyopathy
- High TS and SF

Ferroportin disease

- Caucasian or non-Caucasian, male or female, 10–80 years old
- One parent with unexplained hyperferritinemia
- Unexplained elevation of SF and normal TS





HOW WAS HEMOCHROMATOSIS
DISCOVERED ?

HOW DOES

HEMOCHROMATOSIS AFFECT

DAILY LIFE ?

HOW MANY TYPE OF

HEMOCHROMATOSIS ARE THERE ?

CAN HEMOCHROMATOSIS CAUSE

MENTAL PROBLEM

?

