FAMILIAL HYPERCHOLESTEROLEMIA

Updated April 2024

DIAGNOSIS

Familial hypercholesterolemia (FH) is a common (~1/250) autosomal dominant condition that results in a 6- to 22-fold increase in premature cardiovascular disease (CVD) and death. Early diagnosis and treatment can normalize life expectancy.

The Canadian Cardiovascular Society (CCS) recommends the use of the Canadian diagnostic criteria for FH proposed by the Familial Hypercholesterolemia Canada (FH Canada) network (Figure 1).

While clinical criteria can be used for diagnosis, there are limitations to using the classical presentation since few affected persons will exhibit physical findings (e.g. xanthomas, xanthelasmas) at the time of testing. Screening for FH based on family history alone has been shown to miss 30-60% of cases. Genetic testing is not essential for diagnosis and is not yet routinely clinically available in most of Canada.

WHO TO CONSIDER OFFERING GENETIC TESTING

- A close blood relative had a positive genetic test result (include family member's test report if available, and relation to patient)
- High LDL-cholesterol level of >8.5 mmol/L at any age
- Untreated* LDL-cholesterol level of:
  - >5.0 mmol/L+ for age 40 years and over
  - >4.5 mmol/L+ for age 18 to 39 years
  - >3.5 mmol/L+ for age under 18 years

  AND at least one of the following:
  - Tendon xanthomas and/or corneal arcus
  - First-degree relative (FDR) with high LDL- cholesterol level (not due to secondary causes)
  - Patient or FDR with early onset atherosclerotic cardiovascular disease (men under 55 years; women under 65 years)
  - Limited family history information (e.g., adopted)

+Secondary causes of high LDL-C to be ruled out.

*To calculate untreated LDL-C levels in treated patients see the CardioRisk App

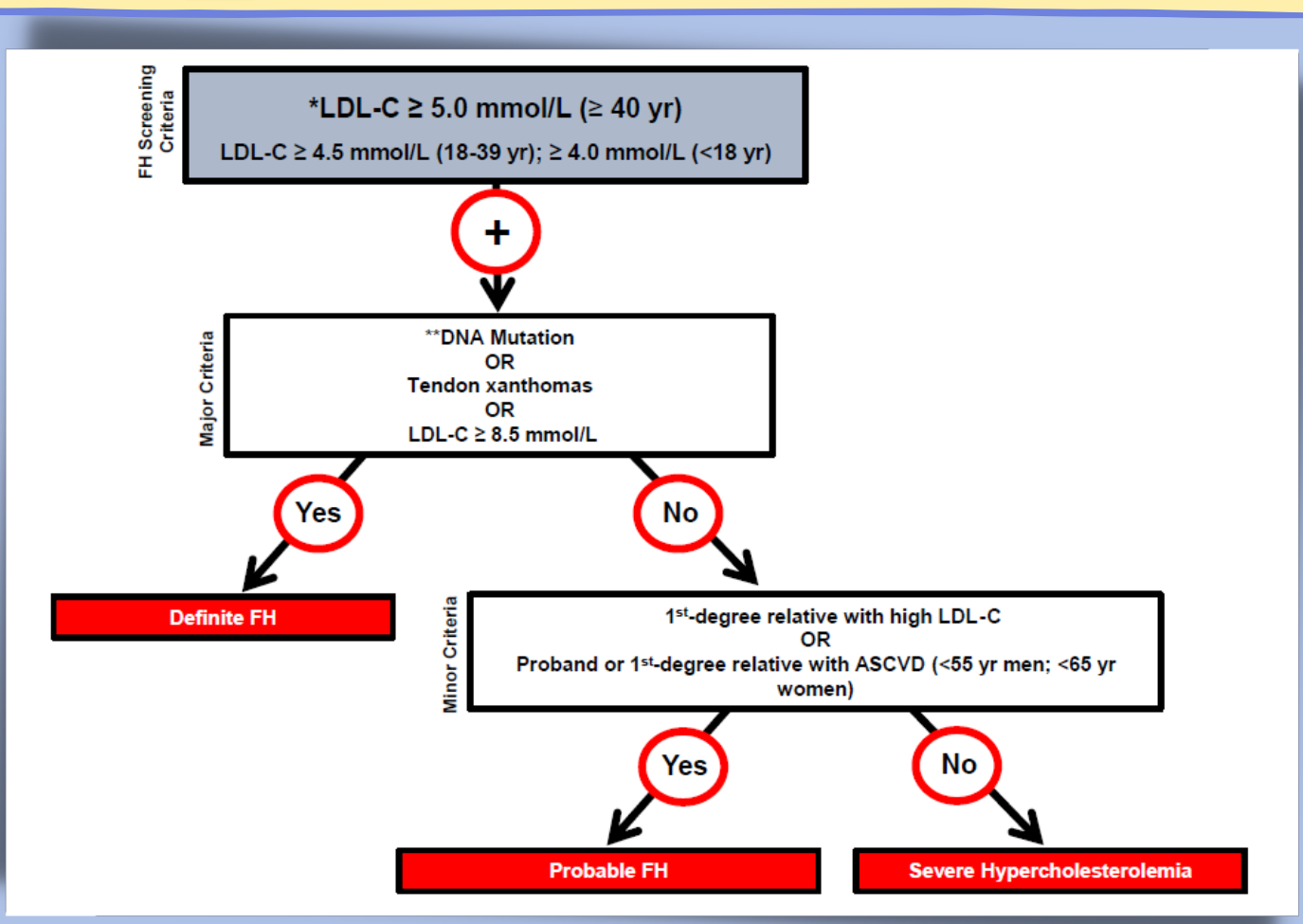

Figure 1. Canadian criteria for the clinical diagnosis of familial hypercholesterolemia (FH).

ASCVD: atherosclerotic cardiovascular disease; LDL-C: low-density lipoprotein cholesterol. * Secondary causes of high LDL-C should be ruled out (severe or untreated hypothyroidism, nephrotic syndrome, hepatic disease [biliary cirrhosis], medication, especially antiretroviral agents) ** DNA mutation refers to the presence of a known FH-causing variant in a FH gene in the individual or a first-degree relative

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The LDL-C levels cited are untreated levels. For a patient who is on lipid lowering medications, the CardioRisk Calculator app has a validated algorithm to assign a baseline value.