

HYPERLIPOPROTEINEMIA – COMPLETE MASTER SUMMARY (Types I–V + Subtypes)

Type I – Familial Hyperchylomicronemia (LPL deficiency / Apo C-II deficiency)

Cause: Lipoprotein lipase deficiency or Apo C-II deficiency

Lipoprotein affected: Chylomicrons ↑↑↑

Labs: Triglycerides ↑↑↑ (>1000 mg/dL), cholesterol normal or slightly ↑

Symptoms: Pancreatitis, abdominal pain, eruptive xanthomas, hepatosplenomegaly, childhood onset

Important notes: No atherosclerosis, worsens with fat intake

Type IIa – Familial Hypercholesterolemia (LDL receptor deficiency / Apo B-100 defect)

Cause: Defective LDL receptor or Apo B-100

Lipoprotein affected: LDL ↑↑

Labs: Cholesterol ↑↑↑, triglycerides normal

Symptoms: Tendon xanthomas, premature atherosclerosis

Important notes: Autosomal dominant, homozygous severe

Type IIb – Combined Hyperlipidemia (Familial Combined Hyperlipidemia - Apo B excess)

Cause: Increased Apo B production

Lipoprotein affected: LDL + VLDL ↑

Labs: Cholesterol ↑, triglycerides ↑

Symptoms: Often asymptomatic, early cardiovascular disease

Important notes: Most common genetic dyslipidemia, high CVD risk

Type III – Dysbetalipoproteinemia (Apo E deficiency)

Cause: Apo E defect → impaired remnant clearance

Lipoprotein affected: IDL (remnants) ↑

Labs: Cholesterol ↑, triglycerides ↑

Symptoms: Palmar xanthomas, tuberous xanthomas, atherosclerosis

Important notes: Affects coronary, carotid, and aorta; worsened by obesity, diabetes

Type IV – Hypertriglyceridemia (VLDL excess)

Subtype 1 – Familial Hypertriglyceridemia

Cause: Increased VLDL production

Lipoprotein affected: VLDL ↑

Labs: Triglycerides ↑

Symptoms: Usually none

Important notes: Low cardiovascular risk

Subtype 2 – Familial Combined Hyperlipidemia (FCHL)

Cause: Apo B overproduction

Lipoprotein affected: LDL + VLDL ↑

Labs: Cholesterol ↑, triglycerides ↑, HDL ↓

Symptoms: Early coronary heart disease

Important notes: Small dense LDL, high risk, variable pattern

General Type IV Features

Symptoms: Usually asymptomatic, no xanthomas

Associated conditions: Obesity, diabetes, hyperuricemia

Secondary causes: Alcohol, stress, OCPs, thiazides, beta-blockers

Type V – Mixed Hyperlipoproteinemia (Chylomicrons + VLDL excess)

Cause: Combined increase in chylomicrons and VLDL

Lipoprotein affected: Chylomicrons + VLDL ↑

Labs: Triglycerides ↑↑, cholesterol ↑

Symptoms: Pancreatitis, abdominal pain, xanthomas, neuropathy

Important notes: Occurs in adults, associated with diabetes, obesity, alcohol, atherosclerosis risk
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FINAL EXAM TIPS

Pancreatitis → Type I & V

Only chylomicrons ↑ → Type I

Only LDL ↑ → Type IIa

LDL + VLDL ↑ → Type IIb / FCHL

Palmar xanthomas → Type III

Only TG ↑ → Type IV

No atherosclerosis → Type I only

Most common genetic → FCHL