Sex and Gender Differences

LIPIDS AND LIPOPROTEINS

Lipids are fat molecules and combine with proteins to transport fat and cholesterol throughout the body.

Abbreviations: HDL-C (high-density lipoprotein cholesterol); LDL-C (low-density lipoprotein cholesterol); TG (triglycerides)

	FEMALE	ALL	MALE

Hormonal Influence	• Pregnancy: higher estrogen levels lead to increased LDL-C, HDL-C, and TG
	• Menopause: small increase in LDL-C
	• Polycystic Ovarian Syndrome: higher testosterone levels lead to increased TG and decreased HDL-C
		• Estrogen, testosterone, and other sex hormones regulate lipid metabolism in the liver
		• Oral estrogen (e.g., some oral contraceptives, feminizing hormone therapy) can affect lipids
		• Anabolic steroid use causes very low HDL-C levels
		• Gender Affirming Hormone Therapy (HT)
		  ◦ Feminizing HT: decreased LDL-C, increased TG, increased HDL-C
		  ◦ Masculinizing HT: increased LDL-C, increased TG, decreased HDL-C
			• Puberty: HDL-C decreases by 10mg/dL due to testosterone
			• Adult men: HDL-C is 10mg/dL lower than in adult women
			• Hypogonadism: increased LDL-C and TG
			  ◦ May correct with testosterone replacement

Prevalence	• Ideal HDL in females ≥ 50 mg/dL • 8.5% have HDL-C < 40 mg/dL • Mean TG = 86.8 mg/dL • 28.1% have LDL-C ≥ 130 mg/dL	• Ideal TG < 150 mg/dL • Ideal LDL < 100 mg/dL	• Ideal HDL in males ≥ 40 mg/dL • 26.6% have HDL-C < 40 mg/dL • Mean TG = 100.6 mg/dL • 27.4% have LDL-C ≥ 130 mg/dL

Presentation	• Higher incidence of metabolic syndrome
	  ◦ Elevated TG
	  ◦ Decreased HDL-C
		• Dyslipidemia is usually asymptomatic
		• LDL-C elevation is associated with atherosclerotic cardiovascular disease (ASCVD)
		• CVD is the leading cause of death in U.S. men and women
		• Hypercholesterolemia can lead to:
		  ◦ Angina
		  ◦ Myocardial infarction
		  ◦ Ischemic stroke
		• Hypertriglyceridemia can lead to pancreatitis
			• Onset of atherosclerotic cardiovascular disease occurs 10 years earlier

Treatment	• Statins contraindicated in pregnancy
	• Statin treatment:
	  ◦ Less likely to be offered despite being eligible
	  ◦ Less likely to receive dosing at the guideline-recommended intensity
	  ◦ At a higher risk of myopathy as a side effect
		• Statin treatment:
		  ◦ Similar LDL-C reduction (unless affected by hormone therapy)
		  ◦ Similar reduction in risk of ASCVD
		• Alternative medications available: bile acid sequestrants, cholesterol absorption inhibitors, PCSK9 inhibitors, fibrates
			• Statin treatment:
			  ◦ More likely to be offered guideline-recommended therapy
			  ◦ More likely to achieve recommended lipid levels

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SEX and GENDER HEALTH COLLABORATIVE of the American Medical Women's Association

To learn more or get involved, visit **amwa-doc.org/sghc**
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Definitions & Disclaimers **References**