

## Hypercholesterolemia Management

According to

1-National Cholesterol Education Program Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults (Adult Treatment Panel III)

2- 'Consensus Conference Report from the American Diabetes Association and the American College of Cardiology Foundation, March 2008'

(Prepared by Syed Haider, MD)

1-While focusing on multiple risk factors, which of the following are the new features of ATP III guidelines:

- a- Raises persons with diabetes without CHD, most of who display multiple risk factors, to the risk level of CHD risk equivalent.
- b- Uses Framingham projections of 10-year absolute CHD risk (i.e., the percent probability of having a CHD event in 10 years) to identify certain patients with multiple (2+) risk factors for more intensive treatment.
- c- Identifies persons with multiple metabolic risk factors (metabolic syndrome) as candidates for intensified therapeutic lifestyle changes.
- d- all of the above

2- ATP III raises categorical low HDL cholesterol from <35 mg/dL to <40 mg/dL because the latter is a better measure of a depressed HDL.

True or false.

3- Which of the following recommendations are supported for implementation by the ATP III guidelines?

- a- Recommends a complete lipoprotein profile (total cholesterol, LDL cholesterol, HDL cholesterol, and triglycerides) as the preferred initial test, rather than screening for total cholesterol and HDL alone.
- b- Encourages use of plant stanols/sterols and viscous (soluble) fiber as therapeutic dietary options to enhance lowering of LDL cholesterol.
- c- Presents strategies for promoting adherence to therapeutic lifestyle changes and drug therapies.
- d- Recommends treatment beyond LDL lowering for persons with triglycerides 200 mg/dL.
- e- all of the above

4- In all adults aged 20 years or older, a fasting lipoprotein profile (total cholesterol, LDL cholesterol, high density lipoprotein (HDL) cholesterol, and triglyceride) should be obtained once every 5 years.

True or False

5- Which of the following pertaining to LDL cholesterol is true according to the ATP III classification?

- a- <100 Optimal

- b- 100-129 Near optimal/above optimal
- c- 130-159 Borderline high
- d- 160-189 High
- e- 190 Very high
- f- all of the above

6- Which of the following is not regarded as a major risk factor (Exclusive of LDL Cholesterol) that modifies LDL goals?

- a- Cigarette smoking
- b- Hypertension (BP 140/90 mmHg or on antihypertensive medication)
- c- Low HDL cholesterol (<40 mg/dL)
- d- Family history of premature CHD (CHD in male first degree relative <55 years; CHD in female first degree relative <65 years)
- e- Serum triglycerides level above 200.
- e- Age (men 45 years; women 55 years)

7- According to ATP III panel all of the following LDL Cholesterol Goals are correct except

Risk Category	LDL Goal (mg/dL)
a- CHD and CHD risk equivalents	<100
b- Multiple (2+) risk factors*	<130
c- Zero to one risk factor	<160
d- Obesity, physical inactivity, and atherogenic diet	<130

8- CHD and CHD risk equivalents carry a risk for major coronary events equal to that of established CHD, which is >20% per 10 years (i.e., more than 20 of 100 such individuals will develop CHD or have a recurrent CHD event within 10 years)

True or False

9- Which of the following is not regarded as CHD risk equivalent?

- a- Peripheral arterial disease
- b- Abdominal aortic aneurysm
- c- Asymptomatic carotid artery disease
- e- Diabetes
- f- Multiple risk factors that confer a 10-year risk for CHD >20%.

10- According to ATP III emerging risk factors for CHD consist of which of the following?

- a- lipoprotein (a)
- b- homocysteine
- c- prothrombotic and proinflammatory factors
- d- impaired fasting glucose
- e- evidence of sub clinical atherosclerotic disease
- f- all of the above

11- Causes of secondary dyslipidemia include which of the following:

- a- Diabetes
- b- Hypothyroidism
- c- Obstructive liver disease
- d- Chronic renal failure
- e- Drugs that increase LDL cholesterol and decrease HDL cholesterol (progestins, anabolic steroids, and corticosteroids).
- f- all of the above

12- What are the current recommendations for the following two categories according to 'Consensus Conference Report From the American Diabetes Association and the American College of Cardiology Foundation, March 2008', pertaining to LDL cholesterol

- a- Highest-risk patients, including those with 1) known CVD or 2) diabetes plus one or more additional major CVD risk factor?
- b- High-risk patients, including those with 1) no diabetes or known clinical CVD but two or more additional major CVD risk factors or 2) diabetes but not other major CVD risk factors

13- What is the initial drug of choice for the vast majority of people with CMR (cardio metabolic risk) who have elevated triglycerides and low HDL cholesterol.

14- In individuals on statin therapy who continue to have low HDL cholesterol or elevated non-HDL cholesterol, what should be the next step in treatment?

15- What do the studies show about fibrates pertaining to

- (a) CVD events and
- (b) mortality.

16- What does the current data show regarding the benefits of strategies directly targeting elevated triglyceride levels?

17- How does monotherapy fare against combination therapy in clinical trials so far?

## ANSWERS

1- While focusing on multiple risk factors, which of the following are the new features of ATP III guidelines:

**d- all of the above**

2- ATP III raises categorical low HDL cholesterol from <35 mg/dL to <40 mg/dL because the latter is a better measure of a depressed HDL.

**True**

3- Which of the following recommendations are supported for implementation by the ATP III guidelines?

**e- all of the above**

4- In all adults aged 20 years or older, a fasting lipoprotein profile (total cholesterol, LDL cholesterol, high density lipoprotein (HDL) cholesterol, and triglyceride) should be obtained once every 5 years.

**True**

If the testing opportunity is non fasting, only the values for total cholesterol and HDL cholesterol will be usable. In such a case, if total cholesterol is  $\geq 200$  mg/dL or HDL is <40 mg/dL, a follow-up lipoprotein profile is needed for appropriate management based on LDL.

5- Which of the following pertaining to LDL cholesterol is true according to the ATP III classification?

**f- all of the above**

6- Which of the following is not regarded as a major risk factor (Exclusive of LDL Cholesterol) that modifies LDL goals?

**e- Serum triglycerides level above 200.** (not regarded as a MAJOR RISK FACTOR)

7- According to ATP III panel all of the following LDL Cholesterol Goals are correct except

Risk Category	LDL Goal (mg/dL)
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**d- Obesity, physical inactivity, and atherogenic diet <130** (These are regarded as *life-habit risk factors* and are direct targets for clinical intervention, but are not used to set a lower LDL cholesterol goal of therapy.)

8- CHD and CHD risk equivalents carry a risk for major coronary events equal to that of established CHD, which is >20% per 10 years (i.e., more than 20 of 100 such individuals will develop CHD or have a recurrent CHD event within 10 years)

**True**

9- Which of the following is not regarded as CHD risk equivalents:

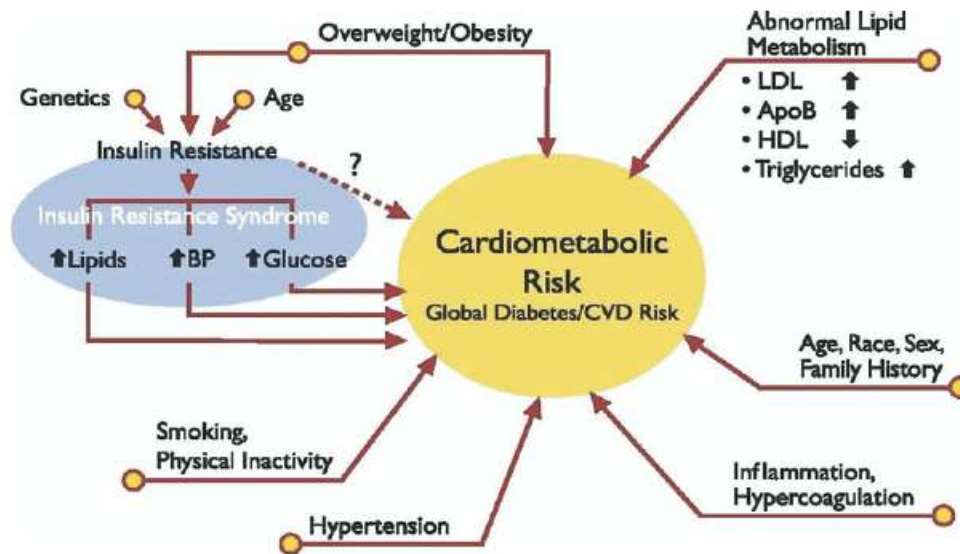
**c- Asymptomatic carotid artery disease** (symptomatic carotid disease is included as a CHD risk equivalent)

10- According to ATP III *emerging risk factors* for CHD consist of all of the following which of the following

**f- all of the above** (The *emerging risk factors* do not categorically modify LDL cholesterol goals; however, they appear to contribute to CHD risk to varying degrees and can have utility in selected persons to guide intensity of risk-reduction therapy. Their presence can modulate clinical judgment when making therapeutic decisions.)

11- Causes of secondary dyslipidemia include which of the following:

**f- all of the above**



**Factors Contributing to Cardiometabolic Risk**

12-

**Table 1. Suggested Treatment Goals In Patients With CMR and Lipoprotein Abnormalities**

	Goals		
	LDL Cholesterol (mg/dl)	Non-HDL Cholesterol (mg/dl)	ApoB (mg/dl)
Highest-risk patients, including those with 1) known CVD or 2) diabetes plus one or more additional major CVD risk factor	<70	<100	<80
High-risk patients, including those with 1) no diabetes or known clinical CVD but two or more additional major CVD risk factors or 2) diabetes but not other major CVD risk factors	<100	<130	<90

Other major risk factors (beyond dyslipoproteinemia) include smoking, hypertension, and family history of premature CAD.

13- A statin is the initial drug of choice for the vast majority of people with CMR who have elevated triglycerides and low HDL cholesterol.

14- In individuals on statin therapy who continue to have low HDL cholesterol or elevated non-HDL cholesterol, especially if apoB levels remain elevated combination therapy is recommended. The preferred agent to use in combination with a statin is nicotinic acid because there is somewhat better evidence for reduction in CVD events with niacin, as monotherapy or in combination, than there is for fibrates.

15- Fibrates have been shown to reduce CVD events in some studies but not mortality.

16- Although patients with elevated triglycerides are at increased CVD risk, there is a lack of data regarding the benefits of strategies directly targeting elevated triglyceride levels. Therefore, it is unclear whether or at what level triglycerides should be treated and what should be the goal of therapy.

17- Monotherapy with statins, fibrates, niacin, and bile acid sequestrants has been shown to reduce cardiovascular events in clinical trials, but there is not yet robust evidence for incremental benefits or risks of combination therapy compared with those of monotherapy.

References:

1- National Cholesterol Education Program Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults (Adult Treatment Panel III).

2-

**Lipoprotein Management in Patients With Cardiometabolic Risk: Consensus Conference Report From the American Diabetes Association and the American College of Cardiology Foundation**

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*J. Am. Coll. Cardiol.* 2008;51:1512-1524; originally published online Mar 27, 2008;