Patient-Centered Medical Home
Team-Based Care Models to Improve Cardiovascular Risk

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Conflict of Interest Disclosure

I have no conflicts and nothing to disclose

Objectives

• Summarize and discuss challenges in cardiovascular risk management
• Describe team based care approach to improve cardiovascular risk
Heart Disease Statistics

- Cardiovascular disease remains the leading cause of death in the United States, responsible for 840,768 deaths in 2016
- 2019: Coronary events are expected to occur in about 1,055,000 individuals, including 720,000 new and 335,000 recurrent coronary events
- The average age of first myocardial infarction is 65.6 years old for men and 72.0 years old for women
- Accounts for 1 in every 4 deaths
- Heart disease costs in the United States is over $200 billion each year

https://www.cdc.gov/heartdisease/facts.htm

Heart Disease Statistics

- High Cholesterol, High Blood pressure and smoking are key risk factors for heart disease
- About half of Americans (47%) have at least one of these three risk factors
- 71 million American adults (33.5%) have high low-density lipoprotein (LDL), or “bad,” cholesterol
- Only 1 out of every 3 adults with high LDL cholesterol has the condition under control

https://www.cdc.gov/nchs/fastats/cholesterol.htm

Team Player

Modifiable Risk Factors:
- Hypertension
- Smoking
- Diabetes
- Lack of exercise
- Obesity and over weight
- Diet and nutrition
- Alcohol
- Stress
- Inflammation
- Metabolic syndrome

Non-Modifiable Risk Factors
- Age
- Gender
- Family history
- Race / Ethnicity
- Genetics
**High Cholesterol**

**Traditional Components:**
- LDL cholesterol
- HDL cholesterol
- Triglycerides
- Chylomicrons
- VLDL
- IDL

**Advanced Components:**
- Apo B
- Lp (A)
- CAC
- hsCRP
- LDL particles
- Apo C-II, Apo C-III
- PLA2

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**Seven Approaches to Stay Heart Healthy**

- Seven Steps to Lower Your Risk for Heart Disease and Stroke
- 1. Quit smoking
- 2. Maintain a healthy weight
- 3. Be physically active
- 4. Eat a healthy diet
- 5. Manage blood pressure
- 6. Control cholesterol levels
- 7. Limit alcohol consumption

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**Cumulative Effect of LDL on Risk for ASCVD**

- Reference: Cumulative Effect of LDL on Risk for ASCVD
Incidence of cardiovascular disease according to the number of ideal health behaviors and health factors

Age-adjusted trends in the prevalence of serum total cholesterol ≥200 mg/dl in adults ≥20 years of age by race/ethnicity, sex

Age-adjusted trends in the prevalence of serum total cholesterol ≥240 mg/dl in adults ≥20 years of age by race/ethnicity, sex

Deaths attributable to cardiovascular disease United States, 1910–2016

Cardiovascular disease (CVD) mortality trends for males and females United States, 1979–2016

<table>
<thead>
<tr>
<th>Cardiovascular disease</th>
<th>Males</th>
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National Committee for Quality Assurance Health Plan Employer Data and Information Set Measures of Care, 2016
Comprehensive care plan

Shared Decision Making

Comprehensive Care Plan

Non Pharmacological:
• Diet and Eating habits
• Physical Activity
• Weight loss
• Smoking cessation
• Alcohol in moderation
• Stress management

Pharmacological:
• Cholesterol
• Blood pressure
• Diabetes
• Platelets

2019 ACC/AHA Guideline on the Primary Prevention of Cardiovascular Disease

Clinical Practice Guideline
1. The most important way to prevent atherosclerotic vascular disease, heart failure, and atrial fibrillation is to promote a healthy lifestyle throughout life.

2. A team-based care approach is an effective strategy for the prevention of cardiovascular disease. Clinicians should evaluate the social determinants of health that affect individuals to inform treatment decisions.

2019 ACC/AHA Guideline on the Primary Prevention of Cardiovascular Disease

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<td>2. Shared decision-making should guide discussions about the best strategies to reduce ASCVD risk.</td>
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<td>3. Social determinants of health should inform optimal implementation of treatment recommendations for the prevention of ASCVD.</td>
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2019 ACC/AHA Guideline on the Primary Prevention of Cardiovascular Disease
Shared Decision Making

- Multiple Risk Conditions
- Multiple Risk Enhancers
- Healthy Lifestyle Throughout Life
- Health determinants

Statin Intolerance
National Lipid Association 2014 Statin Safety Update

Statin Intolerance Definition
• “Clinical syndrome characterized by the inability to tolerate at least 2 statins: one statin at the lowest dose and another statin at any daily dose due to objectionable symptoms (real or perceived) or abnormal laboratory values”…in addition to the following
  • 1. Reversible upon discontinuation
  • 2. Reproducible upon re-challenge
  • 3. Not due to secondary causes

Statins
• Myalgia
• Cognitive impairment
• Liver toxicity
• Diabetes Mellitus
• Allergy
• Cancer
• Cataract
• Neuropathy
• Drug induced lupus
Statin Intolerance

- Age > 75 years
- Asian ancestry
- Increased physical activity
- Alcoholism and Drug abuse
- Vitamin D deficiency
- Hypothyroidism
- Underlying muscle disorder
- Renal or Liver dysfunction
- Rheumatological disorders
- Genetic polymorphism
- Drug interactions
Drug-Drug Interactions

At risk patients:
- Elderly patients
- Polypharmacy
- Comorbid conditions

At risk medications:
- Amiodarone
- Amlodipine
- Azole Anti-fungal
- Colchicine
- Diltiazem
- Gemfibrozil
- Immunosuppressive meds
- Macrolide antibiotics
- Protease inhibitors

Pharmacology of Statin

Natural:
- Lovastatin
- Pravastatin

Semi-Synthetic:
- Simvastatin

Synthetic:
- Fluvastatin
- Pitarvastatin
- Atorvastatin
- Rosuvastatin

Lipophilic:
- Lovastatin
- Simvastatin
- Fluvastatin
- Pitarvastatin
- Atorvastatin
- Rosuvastatin

Hydrophilic:
- Pravastatin
- Rosuvastatin

References:
Pharmacology of Statin

Short acting:
• Lovastatin
• Pravastatin
• Simvastatin
• Fluvastatin

Intermediate acting:
• Pitavastatin

Long acting:
• Atorvastatin
• Rosuvastatin

Low intensity (<30%):
• Lovastatin 20
• Pravastatin 10, 20
• Simvastatin 10
• Fluvastatin 20, 40
• Pitavastatin 1

Moderate intensity (30 to 49%):
• All other doses
• Atorvastatin 40, 80
• Rosuvastatin 20, 40

Statin Intolerance

Switch statin
• 90% were able to tolerate second alternate statin
• 72.5% were able to tolerate third alternate statin

Lower statin dose and Less than daily dose
• Twice weekly or Every other day dosing

Recommendations for Patient-Centered Approaches to ASCVD Prevention

1. A team-based care approach is recommended for the control of risk factors associated with ASCVD.
2. Shared decision-making should guide discussions about the best strategies to reduce ASCVD risk.
3. Social determinants of health should inform optimal implementation of treatment recommendations for the prevention of ASCVD.

2019 ACC/AHA Guideline on the Primary Prevention of Cardiovascular Disease
Excellent Team
Clinical Outcomes

Collaborative Practices
Health Care Delivery

Collaborative Practices
Nurses
Collaborative Practices

- Nurses:
  - Snaterse M et al. Nurse-coordinated care improves the achievement of LDL cholesterol targets through more intensive medication titration. Open Heart 2017; 4:e000607

- Pharmacist:
  - Priestley-Barnham, L et al. The role of the Familial Hypercholesterolaemia clinical nurse specialist in managing and empowering adolescents and young people with FH to take control of their health. Atherosclerosis, Volume 245, e250 - e251
Collaborative Practices

- Pharmacists:
- Tsuyuki RT et al. Effectiveness of Community Pharmacist Prescribing and Care on Cardiovascular Risk Reduction: Randomized Controlled RxEACH Trial. J Am Coll Cardiol. 2016;S0735-1097 (16) 32407-X

Collaborative Practices

- Pharmacists:

Clinical Feature:
Pharmacist-Managed Lipid Clinic in Community Health Center May Be an Answer for Providing Patient-Centered Care for Dyslipidemia

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Collaborative Practices

Dieticians

All adults should consume a healthy diet that emphasizes the intake of vegetables, fruits, nuts, whole grains, lean vegetable or animal protein, and fish and minimizes the intake of trans fats, red meat and processed meats, refined carbohydrates, and sugar-sweetened beverages. For adults with overweight/obesity, counseling and caloric restriction are recommended for achieving and maintaining weight loss.

- In addition to the prescription of diet modifications, body size perception, as well as social and cultural influences, should be assessed.
- Potential barriers to adhering to a heart-healthy diet should be assessed, including food access and economic factors; these factors may be particularly relevant to persons from vulnerable populations, such as individuals residing in either inner city or rural environments, those of socioeconomic disadvantage, and those of advanced age.*

Collaborative Practices

Behavioral Health
Evidence-Based Individual Approaches for Improving Health Behaviors and Health Factors in the Clinic Setting

Collaborative Practices

Educator/Coordinators
Evidence-Based Healthcare Systems Approaches to Support and Facilitate Improvements in Health Behaviors and Health Factors

In addition to the prescription of diet modifications, body size reduction, as well as social and cultural influences should be considered. A healthy diet should be encouraged, including leafy greens and other nutrient-rich foods, as well as reducing sodium intake and increasing physical activity should be encouraged.

- **Insulin resistance** should include assessment of A1C levels, blood pressure, and other related factors.
- **Weight loss** should be prioritized in patients with overweight/obesity, who are at risk for adverse health outcomes.

**Diabetes mellitus**

- Short- and long-term outcomes are associated with high blood pressure, and should be controlled. Because other lifestyle factors can impact blood pressure, focus on a healthy, low-sodium diet and regular exercise are also critical.

**High blood pressure**

- Not interested in medications

**Dyslipidemia**

- Statin intolerance
- **Maximum therapeutic options**
- Not responding to medications
- **Residual risk evaluation**
- Risk enhancement discussion
- **Not interested in medications**

**Precipitating factors**

- **Insulin resistance**
- **Weight loss**
- **Obesity**
- **Overweight**
- **Blood pressure**
- **LDL cholesterol**
- **Hypertension**
- **Diabetes mellitus**
- **Hypertension**
- **Overweight**
- **Diabetes mellitus**

**Collaborative Practices**

- Patients who are statin intolerant
- Maximum therapeutic options
- Not responding to medications
- Residual risk evaluation
- Risk enhancement discussion
- Not interested in medications

**2019 ACC/AHA Guideline on the Primary Prevention of Cardiovascular Disease**

**Rome Collaborative**

- Not interested in medications
- Maximum therapeutic options
- Not responding to medications
- Residual risk evaluation
- Risk enhancement discussion
- Not interested in medications

**Evidence-Based Healthcare Systems Approaches to Support and Facilitate Improvements in Health Behaviors and Health Factors**
Collaborative Practices

Lipidologists

Summary

Collaboration with Patients:
• Shared Decision Making: Unique to Individual and important to address
• Statin Intolerance

Collaboration with Health Care Personnel:
• Team Based Care with Collaboration with Allied Health Care team
• Refer to Lipid Specialist

Thank you