Primary Prevention in Women

Sarika Desai, D.O.
Clinical Associate Professor of Medicine
University of Arizona

Objectives

1.Review of the ACC/AHA 2019 Guidelines for Prevention of Cardiovascular Disease which emphasize a team-based approach to prevent cardiovascular disease.

2. Detailed review of the recommendations on the importance of a healthy lifestyle.

3.Review the ASCVD risk estimation with emphasis on clinician-patient risk discussion before starting pharmacological therapy for antihypertensives, statins or aspirin.

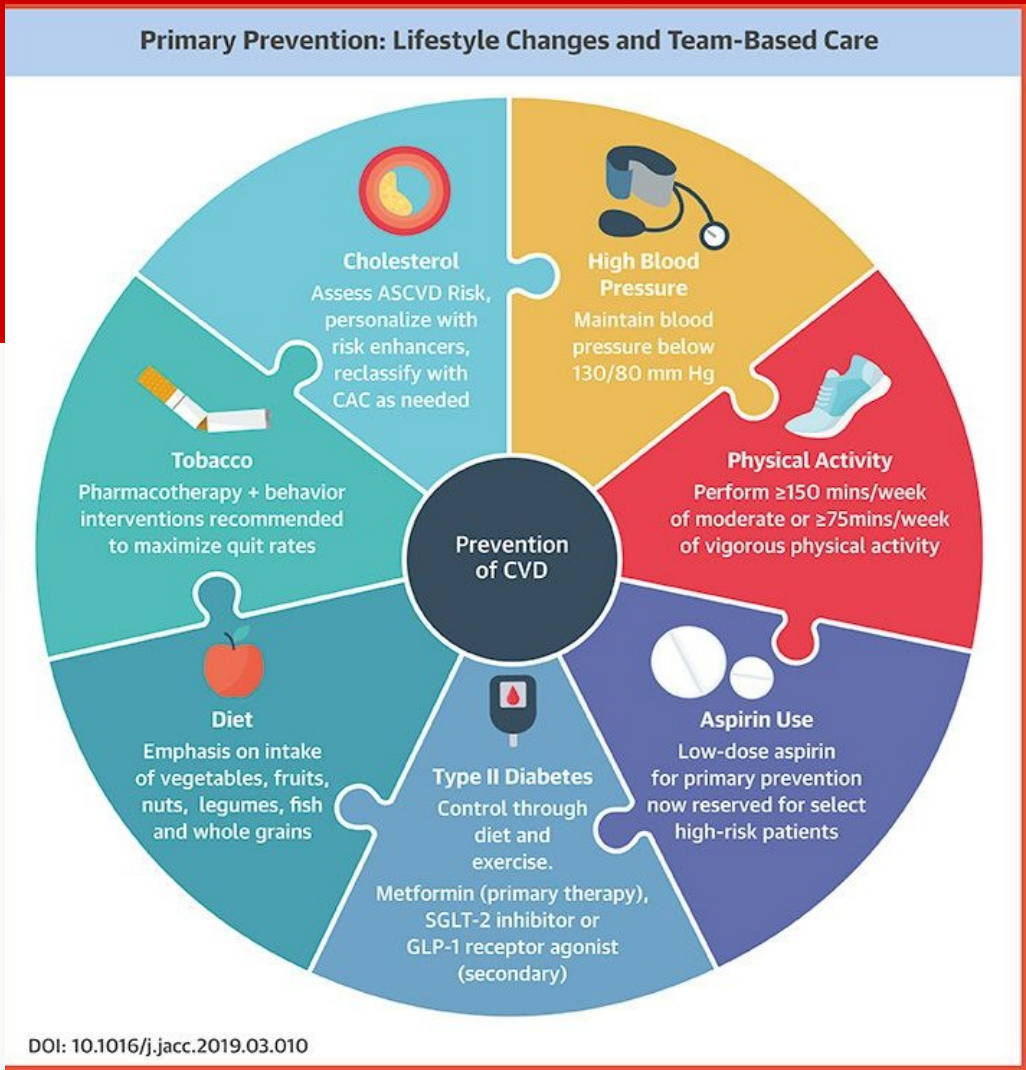
4.Review of risk factors for heart disease in the female population, which cardiologists need to practice more often because this requires a more holistic approach.

Introduction

- ASCVD remains the leading cause of morbidity and mortality globally.
- Approximately 630,000 Americans died from heart disease in 2015, of whom 366,000 died from CAD. After 4 decades of decline, heart disease deaths rose in 2015 by 1%. This has been attributed to the obesity epidemic.
- Much of this is also attributable to suboptimal implementation of prevention strategies and uncontrolled ASCVD risk factors in many adults.
- A comprehensive patient-centered approach that addresses all aspects of a patient's lifestyle habits is the first step in deciding on where there may be a need for the patient to be educated and given the time to incorporate lifestyle changes, or be initiated on pharmacotherapy.
  - Even if a blood pressure (BP)–reducing medication, lipid-lowering medication, or diabetes medication is ultimately prescribed, lifestyle goals need to be addressed on a regular basis @ **EVERY** visit.
  - Only when a person's risk is sufficiently high should medications to reduce ASCVD risk be considered as part of a shared decision-making process for optimal treatment.

Prevention

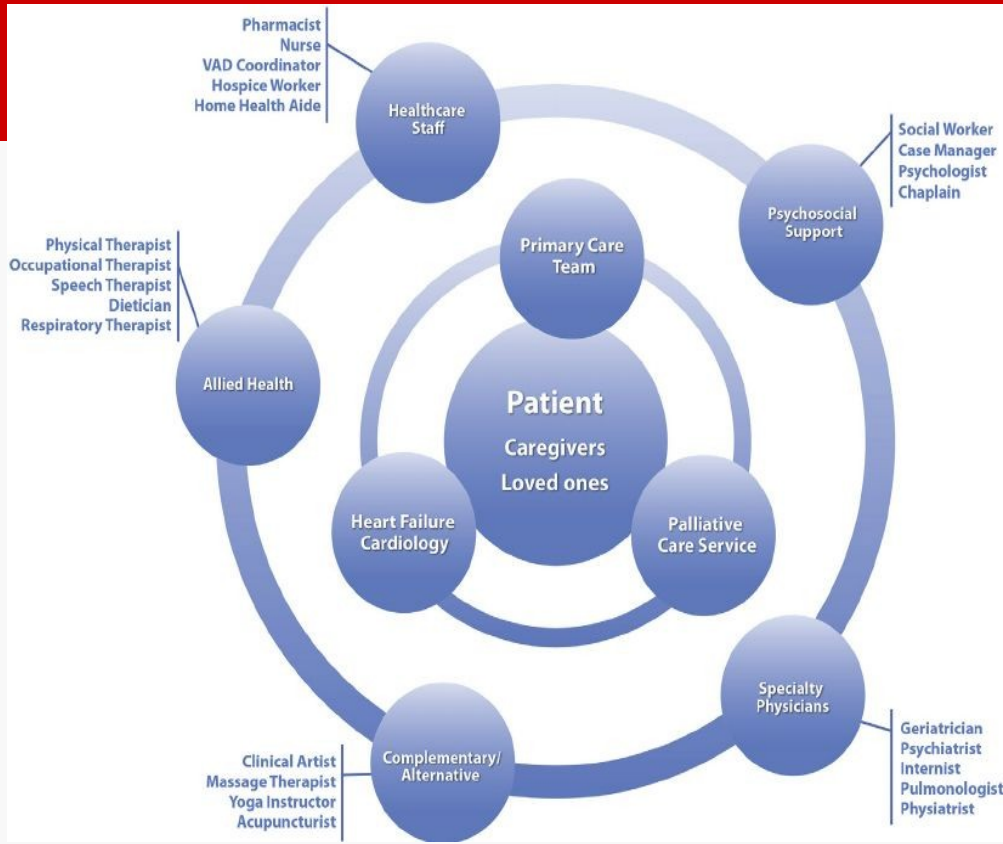
The most important way to prevent atherosclerotic vascular disease, heart failure, and atrial fibrillation is to promote a healthy lifestyle throughout life.



It Takes a Team

- A team-based care approach is an effective strategy for the prevention of cardiovascular disease.

- Clinicians should evaluate the physical, emotional, & social determinants of health that affect individuals to inform treatment decisions.



Prevention Guidelines

- Adults who are b/w age 40-75 and are being evaluated for cardiovascular disease prevention should undergo 10-year atherosclerotic cardiovascular disease (ASCVD) risk estimation and have a clinician–patient risk discussion before starting on pharmacological therapy, such as antihypertensive therapy, a statin, or aspirin.

- In addition, some patient have a borderline or intermediate 10-year risk, so they may be reluctant to take medications without clearer evidence of increased ASCVD risk. In these patients, CAC screening can bedone.

- The 10-year ASCVD risk estimate should be the start of a conversation with the patient about risk-reducing strategies and not the sole decision factor for the initiation of pharmacotherapy.

AMERICAN COLLEGE of CARDIOLOGY

ASCVD Risk Estimator Plus

Estimate Risk | Therapy Impact | Advice

Current Age *

Age must be between 20-79

Sex *

Male | Female

Race *

White | African American | Other

Systolic Blood Pressure (mm Hg) *

Value must be between 90-200

Diastolic Blood Pressure (mm Hg)

Value must be between 60-130

Total Cholesterol (mg/dL) *

Value must be between 130 - 320

HDL Cholesterol (mg/dL) *

Value must be between 20 - 100

LDL Cholesterol (mg/dL)

Value must be between 30-300

History of Diabetes? *

Yes | No

Smoker? *

Current | Former | Never

On Hypertension Treatment? *

Yes | No

On a Statin?

Yes | No

On Aspirin Therapy?

Yes | No

Do you want to refine current risk estimation using data from a previous visit?

Yes | No

Risk-Enhancing Factors for the Clinician-Patient

The conversation involves more than traditional risk factors, others should also be considered.

Family history of premature ASCVD (males, age <55y; females, age <65y)

All adults should be assessed at every healthcare visit for tobacco use, and be strongly advised to quit. Primary

hypercholesterolemia (LDL-C, 160–189 mg/dL; non–HDL-C 190–219 mg/dL)

Metabolic syndrome (increased waist circumference, elevated triglycerides [>150 mg/dL, nonfasting], HTN, elevated glucose, and low HDL-C [<40 mg/dL in men; <50 mg/dL in women] are factors

-3 of these make the diagnosis of *metabolic syndrome*

Chronic kidney disease

Risk-Enhancing Factors in Women

This new listing advocates for the consideration of features unique to or predominant in women.

1. h/o preeclampsia
2. preterm delivery
3. small for gestational age infants
4. chronic inflammatory diseases, such as rheumatoid arthritis, psoriasis, Crohn's/UC, lupus, or HIV/AIDS infection
5. persistently elevated inflammatory markers
6. h/o premature menopause (< age 40)

Preeclampsia and gestational diabetes impart a 3- to 6-fold increased risk for subsequent hypertension & a 2-fold increased risk of ischemic heart disease and stroke.

Although many manifestations of preeclampsia subside with the delivery of the placenta, there remains residual endothelial dysfunction, and this is associated with an increase in CAC.

Risk-Enhancing Factors in both genders

High-risk race/ethnicity.

People of **South Asian** descent, including those from India, Pakistan, Bangladesh, Nepal, Sri Lanka, Bhutan and the Maldives, have a **higher risk** of ASCVD – 4x **higher** than the general population.

Moreover, they develop **heart disease** up to a decade earlier (often before the fifth decade of life).

In the *MESA* (Multi-Ethnic Study of Atherosclerosis) trial (NEJM) of over 6700 men and women: 38.6% were white, 27.6% were black, 21.9% were Hispanic, and 11.9% were Chinese.

The CAC score was strongly associated with 10-year ASCVD risk in a graded manner across age, sex, and racial/ethnic groups, independent of traditional risk factors.

Selected Examples of Candidates for CAC Who Might Benefit From Knowing Their Score= 0

Patients reluctant to initiate statin who wish to understand their risk more precisely

Patients concerned about need to reinstitute statin therapy after discontinuation for side effects

Older patients (men age 55–80; women 60–80) with low burden of risk factors who question whether they would benefit from statin therapy

Middle-aged adults (b/w 40–55) with a calculated 10-year risk of ASCVD 5%-7.5% with factors that increase their ASCVD risk

Risk-Enhancing Factors in both genders

Persistently elevated lipids/biomarkers, primary hypertriglyceridemia (≥175 mg/dL, nonfasting)

Elevated hsCRP (≥2.0 mg/L)

Elevated Lp(a) >50 mg/dL: measure when there's a family h/o premature ASCVD. This is predominantly genetically determined, however there is some data that HRT in postmenopausal women reduces Lp(a)

Elevated apoB (≥130 mg/dL): measure when triglycerides ≥200 mg/dL.

ABI (<0.9)

Diet &CV Risk

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 red meats, refined carbohydrates, and sweetened beverages.

For adults with overweight and obesity, counseling and caloric restriction are recommended for achieving and maintaining weight loss.

HTN &CVRisk

Non Pharmacological interventions are recommended for all adults with elevated BP/HTN. For those requiring pharmacological therapy, the target blood pressure should generally be <130/80 mm Hg.

Promote healthy eating habits include diets high in vegetables, fruits, nuts, whole grains and lean protein sources like fish—such as the Mediterranean diet.

Discourage diets high in sugar or refined grains, carbohydrates, saturated fats, trans fats and processed meats such as bacon, sausage or salami, which are linked with a higher risk of CV death.

Encourage people who are overweight to participate in a 6-month lifestyle program that decreases calories by 500–800 per day and adds 200–300 minutes of physical activity a week. A drop of 5% body weight can improve blood pressure.

HTN &CVRisk

Borderline high blood pressure patients between 120-129/80 can try a heart healthy diet, exercise, weight loss and salt intake reduction.

In people with blood pressures between 130–139/80–89 but with a fairly low 10-year risk, the patient could also first try to modify lifestyle factors.

Patients with a blood pressure ≥130/80 with a high 10-year cardiovascular disease risk (at 10% or more), diabetes or kidney disease should go on blood pressure-lowering medication.

Exercise

Adults should engage in at least 150 minutes per week of accumulated moderate-intensity physical activity or 75 minutes per week of vigorous-intensity physical activity. ***50% US adults don't get the recommended exercise levels.***

Hours Per Day Spent in Various States of Activity Intensity METs Examples *Sedentary*: 1–

1.5 METS Sitting, reclining, or lying; watching television *Light*: 1.6–2.9 METS

Walking slowly, cooking, light housework

Moderate: 3.0 –5.9 METS Brisk walking (2.4–4 mph), biking (5–9 mph), ballroom dancing, active yoga, recreational swimming

Vigorous: ≥6METS Jogging/running, biking (≥10mph), singles tennis, swimminglaps

Diabetes and CV Risk

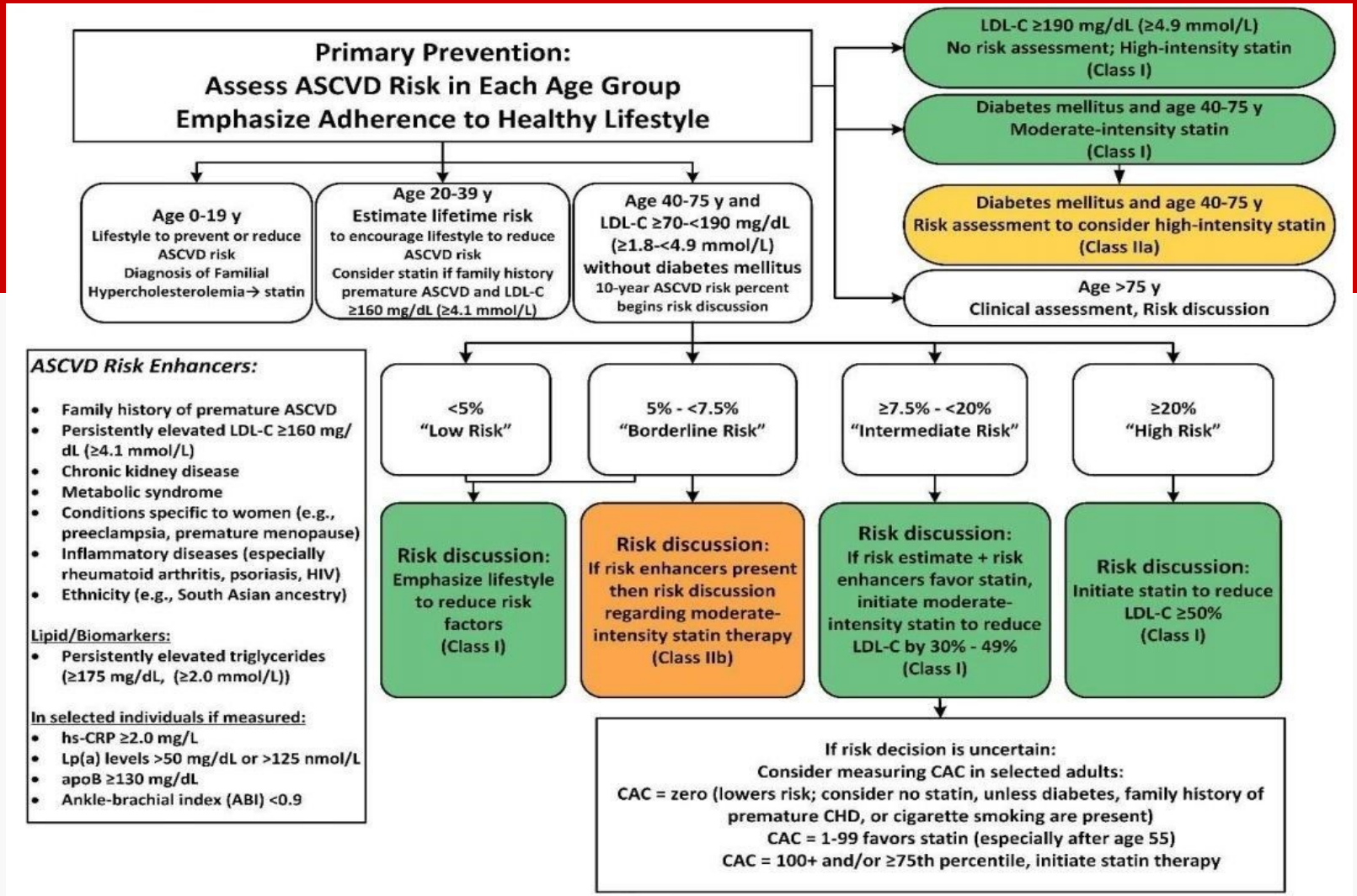
For adults with type 2 DM, lifestyle changes-improving dietary habits and achieving exercise recommendations, are crucial. If medication is indicated, metformin is first-line therapy, followed by consideration of a sodium-glucose cotransporter 2 inhibitor or a glucagon-like peptide-1 receptor agonist.

In the CVD-REAL study, a multinational, observational study in which adults with type 2 diabetes (T2D) were identified. Patients prescribed a SGLT-2i or other glucose-lowering drugs (GLDs) were matched based on a propensity score for initiation of a SGLT-2i. The primary endpoints of interest were the time to death, HF, and the composite endpoint of HF or death. Results report the use of SGLT-2i and a lower risk of death and HF that was observed across the spectrum of risk including patients with and without established CVD.

Three major SGLT2 inhibitor trials (now w/ the addition of DECLARE–TIMI 58) show a benefit for hospitalization with heart failure and renoprotection. The meta-analysis also suggests that people w/CVD are the beneficiaries of the risk reduction.

Statins

Statin therapy is first-line treatment for primary prevention of ASCVD in patients with elevated low-density lipoprotein cholesterol levels (≥190 mg/dL), those with diabetes mellitus, who are 40 to 75 years of age, and those determined to be at sufficient ASCVD risk after a clinician–patient risk discussion.


Primary Prevention:
Assess ASCVD Risk in Each Age Group
Emphasize Adherence to Healthy Lifestyle
Age 0-19 y
Lifestyle to prevent or reduce ASCVD risk
Diagnosis of Familial Hypercholesterolemia→ statin
Age 20-39 y
Estimate lifetime risk
to encourage lifestyle to reduce ASCVD risk
Consider statin if family history premature ASCVD and LDL-C ≥160 mg/dL (≥4.1 mmol/L)
Age 40-75 y and LDL-C ≥70-<190 mg/dL (≥1.8-<4.9 mmol/L) without diabetes mellitus
10-year ASCVD risk percent begins risk discussion
LDL-C ≥190 mg/dL (≥4.9 mmol/L)
No risk assessment; High-intensity statin
(Class I)
Diabetes mellitus and age 40-75 y
Moderate-intensity statin
(Class I)
Diabetes mellitus and age 40-75 y
Risk assessment to consider high-intensity statin
(Class IIa)
Age >75 y
Clinical assessment, Risk discussion
ASCVD Risk Enhancers:
Family history of premature ASCVD
Persistently elevated LDL-C ≥160 mg/dL (≥4.1 mmol/L)
Chronic kidney disease
Metabolic syndrome
Conditions specific to women (e.g., preeclampsia, premature menopause)
Inflammatory diseases (especially rheumatoid arthritis, psoriasis, HIV)
Ethnicity (e.g., South Asian ancestry)
Lipid/Biomarkers:
Persistently elevated triglycerides (≥175 mg/dL, (≥2.0 mmol/L))
In selected individuals if measured:
hs-CRP ≥2.0 mg/L
Lp(a) levels >50 mg/dL or >125 nmol/L
apoB ≥130 mg/dL
Ankle-brachial index (ABI) <0.9
<5%
"Low Risk"
5% - <7.5%
"Borderline Risk"
≥7.5% - <20%
"Intermediate Risk"
≥20%
"High Risk"
Risk discussion:
Emphasize lifestyle to reduce risk factors
(Class I)
Risk discussion:
If risk enhancers present then risk discussion regarding moderate-intensity statin therapy
(Class IIb)
Risk discussion:
If risk estimate + risk enhancers favor statin, initiate moderate-intensity statin to reduce LDL-C by 30% - 49%
(Class I)
Risk discussion:
Initiate statin to reduce LDL-C ≥50%
(Class I)
If risk decision is uncertain:
Consider measuring CAC in selected adults:
CAC = zero (lowers risk; consider no statin, unless diabetes, family history of premature CHD, or cigarette smoking are present)
CAC = 1-99 favors statin (especially after age 55)
CAC = 100+ and/or ≥75th percentile, initiate statin therapy

Limitations

The ASCVD Risk Score fails to capture individuals of non-white ancestry, particularly Hispanic and South Asian populations who constitute a higher-risk population.

Most recommendations from the 2019 American College of Cardiology (ACC)/American Heart Association (AHA) Guideline on the Primary Prevention of Cardiovascular Disease are not gendered, reflecting the scientific databases from which they were derived, although admittedly women were underrepresented in most studies.

Thank you