SJHG Heartbeat

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Heart of a Woman – CVD Risk Prevention

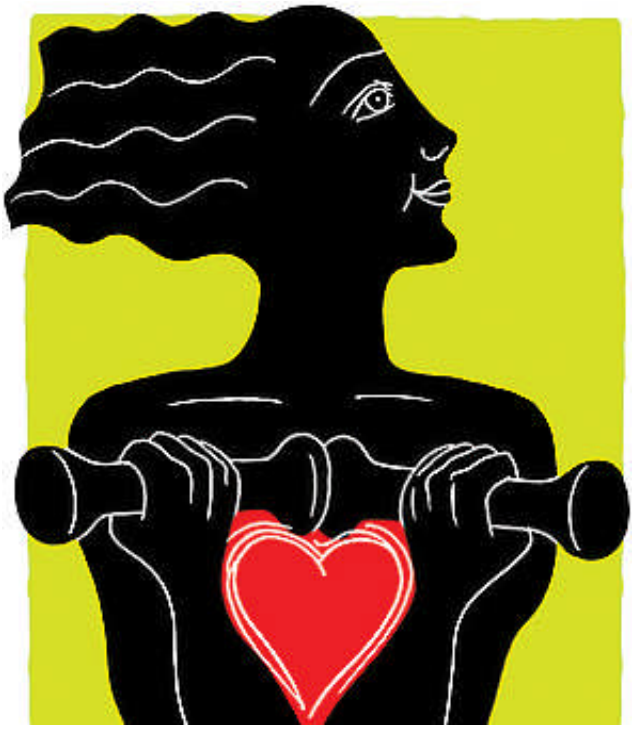

Illustration for TIME MAGAZINE by Luba Lukova

Medical myths die hard, and one of the biggest is that heart disease is a problem mostly for men. That's not even remotely true. More women than men die of cardiovascular disease (CVD) in many countries, including the US. For example, 34 million women live in the US with CVD, about 34%--one out of every 3 women! In spite of the striking statistics, heart disease in women is still under-treated. This *Heartbeat* will review the recently released American Heart Association (AHA) 2007 Guidelines for CVD prevention in women[1] and a recent ECG study, assisting in identification, to help reverse this faulty thinking and reduce women's risk of CVD.

Fortunately most CVD in women is preventable. This 2007 update provides the most current clinical recommendations for the prevention of CVD in women based on an extensive review of the literature, interpreted by experts in many fields of medicine and cardiology. These guidelines cover the primary and secondary prevention of CVD. The 2007 update recommends a scheme for a general approach to the female risk assessment that classifies her as at high risk, at risk, or at optimal risk (Table 1).

TABLE 1. Classification of CVD Risk in Women

Risk Status	Criteria
High risk	Established coronary heart disease
	Cerebrovascular disease
	Peripheral arterial disease
	Abdominal aortic aneurysm
	End-stage or chronic renal disease
	Diabetes mellitus
	10-Year Framingham global risk >20%*
At risk	≥1 major risk factors for CVD, including:
	Cigarette smoking
	Poor diet
	Physical inactivity
	Obesity, especially central adiposity
	FH of premature CVD (CVD at <55 years of age in male relative and <65 years of age in female relative)
	Hypertension
	Dyslipidemia
	Evidence of subclinical vascular Disease (eg, coronary calcification)
	Metabolic syndrome
	Poor exercise capacity
Optimal risk	Framingham global risk <10% and a healthy lifestyle, with no risk factors

CVD indicates cardiovascular disease.
*Or at high risk on the basis of another population-adapted tool used to assess global risk.

The Framingham global risk score is still being used as part of the evaluation (high risk) and to help guide lipid therapy.[2] But a growing appreciation of its limitation in assuring that an individual woman is at

low risk led to the above general classification. Even the presence of a single risk factor at 50 years of age (including physical inactivity, poor diet and smoking) is associated with a substantially increased lifetime absolute risk for CVD and shorter duration of survival. This doesn't leave too many women in the optimal risk category (< 10%). "Our biggest message is don't wait until you have a risk factor, because 40% of the time the first symptom of heart disease for a woman is a fatal heart attack," warns preventive cardiologist Dr Lori Mosca, chair of the expert panel that wrote the brand-new guidelines.

Clinical Recommendations and Limitations

Evidence-based recommendations for the prevention of CVD in women are listed in Table 3. Each recommendation is accompanied by the strength of recommendation and the level of evidence to support it (Table 2). Interventions which may not be useful are listed in Table 4. A suggested algorithm for the prevention of CVD in women that incorporates the updated guidelines is presented on the last page.

Widespread documentation of lack of adherence to CVD prevention guidelines is well known even among women at high risk of CVD in managed-care settings in the US where access and medication coverage are available. It is our hope that more women will talk to their doctors and more doctors will talk to their female patients about making some lifestyle changes and getting heart healthy.

TABLE 2. Classification and Levels of Evidence

Classification	Strength of Recommendation
Class I	Intervention is useful and effective.
Class IIa	Weight of evidence/opinion is in favor of usefulness/efficacy.
Class IIb	Usefulness/efficacy is less well established by evidence/opinion.
Class III	Intervention is not useful/effective and use may be harmful.
Level of evidence	
A	Sufficient evidence from multiple randomized trials
B	Limited evidence from single randomized trial or other nonrandomized studies
C	Based on expert opinion, case studies, or standard of care

Table 3. Guidelines for Prevention of CVD in Women: Clinical Recommendations

Lifestyle interventions

Cigarette smoking
Women should not smoke and should avoid environmental tobacco smoke. Provide counseling, nicotine replacement, and other pharmacotherapy as indicated in conjunction with a behavioral program or formal smoking cessation program *(Class I, Level B)*.

Physical activity
Women should accumulate a minimum of 30 minutes of moderate-intensity physical activity (eg, brisk walking) on most, and preferably all, days of the week. *(Class I, Level B)*.
Women who need to lose weight or sustain weight loss should accumulate a minimum of 60 to 90 minutes of moderate-intensity physical activity (eg, brisk walking) on most, and preferably all, days of the week *(Class I, Level C)*

Rehabilitation
A comprehensive risk-reduction regimen, such as cardiovascular or stroke rehabilitation or a physician-guided home- or community-based exercise training program, should be recommended to women with a recent acute coronary syndrome or coronary intervention, new-onset or chronic angina, recent cerebrovascular event, peripheral arterial disease *(Class I, Level A)*, or current/prior symptoms of heart failure and an LVEF<40% *(Class I, Level B)*.

Dietary intake
Women should consume a diet rich in fruits and vegetables; choose whole-grain, high-fiber foods; consume fish, especially oily fish,* at least twice a week; limit intake of saturated fat to < 10% of energy, and if possible to < 7%, cholesterol to < 300 mg/d, alcohol intake to no more than 1 drink per day,† and sodium intake to < 2.3 g/d (approximately 1 tsp salt). Consumption of *trans*-fatty acids should be as low as possible (eg, < 1% of energy) *(Class I, Level B).*

Weight maintenance/reduction
Women should maintain or lose weight through an appropriate balance of physical activity, caloric intake, and formal behavioral programs when indicated to maintain/achieve a BMI between 18.5 and 24.9 kg/m2 and a waist circumference < 35 in *(Class I, Level B)*.

Omega-3 fatty acids
As an adjunct to diet, omega-3 fatty acids in capsule form (approximately 850 to 1000 mg of EPA and DHA) may be considered in women with CHD, and higher doses (2 to 4 g) may be used for treatment of women with high triglyceride levels *(Class IIb, Level B)*.

Depression
Consider screening women with CHD for depression and refer/treat when indicated *(Class IIa, Level B)*.

Major risk factor interventions

Blood pressure—optimal level and lifestyle
Encourage an optimal blood pressure of < 120/80 mm Hg through lifestyle approaches such as weight control, increased physical activity, alcohol moderation, sodium restriction, and increased consumption of fresh fruits, vegetables, and low-fat dairy products *(Class I, Level B)*.

Blood pressure—pharmacotherapy
Pharmacotherapy is indicated when blood pressure is ≥ 140/90 mm Hg or at an even lower blood pressure in the setting of chronic kidney disease or diabetes (> 130/80 mm Hg). Thiazide diuretics should be part of the drug regimen for most patients unless contraindicated or if there are compelling indications for other agents in specific vascular diseases. Initial treatment of high-risk women‡ should be with β-blockers and/or ACE inhibitors/ARBs, with addition of other drugs such as thiazides as needed to achieve goal blood pressure *(Class I, Level A)*

Lipid and lipoprotein levels— optimal levels and lifestyle
The following levels of lipids and lipoproteins in women should be encouraged through lifestyle approaches: LDL-C < 100 mg/dL, HDL-C > 50 mg/dL, triglycerides < 150 mg/dL, and non–HDL-C (total cholesterol minus HDL cholesterol) < 130 mg/dL *(Class I, Level B)*. If a woman is at high risk‡ or has hypercholesterolemia, intake of saturated fat should be < 7% and cholesterol intake < 200 mg/d) *(Class I, Level B)*.

Lipids—pharmacotherapy for LDL lowering, high-risk women
Utilize LDL-C–lowering drug therapy simultaneously with lifestyle therapy in women with CHD to achieve an LDL-C < 100 mg/dL *(Class I, Level A)* and similarly in women with other atherosclerotic CVD or diabetes mellitus or 10-year absolute risk > 20% *(Class I, Level B)*.
A reduction to < 70 mg/dL is reasonable in very-high-risk women§ with CHD and may require an LDL-lowering drug combination *(Class IIa, Level B)*.

Lipids—pharmacotherapy for LDL lowering, other at-risk women
Utilize LDL-C–lowering therapy if LDL-C level is ≥ 130 mg/dL with lifestyle therapy and there are multiple risk factors and 10-year absolute risk 10% to 20% *(Class I, Level B)*.
Utilize LDL-C–lowering therapy if LDL-C level is ≥ 160 mg/dL with lifestyle therapy and multiple risk factors even if 10-year absolute risk is < 10% *(Class I, Level B)*.
Utilize LDL-C–lowering therapy if LDL ≥ 190 mg/dL regardless of the presence or absence of other risk factors or CVD on lifestyle therapy *(Class I, Level B)*.

Lipids—pharmacotherapy for low HDL or elevated non–HDL, high-risk women
Utilize niacin ‖or fibrate therapy when HDL-C is low or non–HDL-C is elevated in high-risk women ‖ after LDL-C goal is reached *(Class IIa, Level B)*.

Lipids—pharmacotherapy for low HDL or elevated non-HDL, other at-risk women
Consider niacin or fibrate therapy when HDL-C is low or non–HDL-C is elevated after LDL-C goal is reached in women with multiple risk factors and a 10-year absolute risk 10% to 20% *(Class IIb, Level B)*.

Diabetes mellitus
Lifestyle and pharmacotherapy should be used as indicated in women with diabetes *(Class I, Level B)* to achieve an HbA1C < 7% if this can be accomplished without significant hypoglycemia *(Class I, Level C)*.

Preventive drug interventions

Aspirin, high risk
Aspirin therapy (75 to 325 mg/d)¶ should be used in high-risk‡ women unless contraindicated *(Class I, Level A)*.
If a high-risk‡ woman is intolerant of aspirin therapy, clopidogrel should be substituted *(Class I, Level B)*.

Aspirin— other at-risk or healthy women
In women ≥ 65 years of age, consider aspirin therapy (81 mg daily or 100 mg every other day) if blood pressure is controlled and benefit for ischemic stroke and MI prevention is likely to outweigh risk of gastrointestinal bleeding and hemorrhagic stroke *(Class IIa, Level B)* and in women < 65 years of age when benefit for ischemic stroke prevention is likely to outweigh adverse effects of therapy *(Class IIb, Level B)*

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β-Blockers
β-Blockers should be used indefinitely in all women after MI, acute coronary syndrome, or left ventricular dysfunction (LVEF ≤ 40%) with or without heart failure symptoms, unless contraindicated *(Class I, Level A)*.

ACE inhibitors/ARBs
ACE inhibitors should be used (unless contraindicated) in women after MI and in those with clinical evidence of heart failure or an LVEF ≤ 40% or with diabetes mellitus *(Class I, Level A)*. In women after MI and in those with clinical evidence of heart failure or an LVEF ≤ 40% or with diabetes mellitus who are intolerant of ACE inhibitors, ARBs should be used instead *(Class I, Level B)*.

Aldosterone blockade
Use aldosterone blockade after MI in women who do not have significant renal dysfunction or hyperkalemia who are already receiving therapeutic doses of an ACE inhibitor and β blocker, and have LVEF ≤ 40% with symptomatic heart failure *(Class I, Level B)*.

LVEF indicates left ventricular ejection fraction; BMI, body mass index; EPA, eicosapentaenoic acid; DHA, docosahexaenoic acid; CHD, coronary heart disease; ACE, angiotensin-converting enzyme; ARB, angiotensin receptor blocker; LDL-C, low-density lipoprotein cholesterol; HDL-C, high-density lipoprotein cholesterol; CVD, cardiovascular disease; and MI, myocardial infarction.

*Pregnant and lactating women should avoid eating fish potentially high in methylmercury (eg, shark, swordfish, king mackerel, or tile fish) and should eat up to 12 oz/wk of a variety of fish and shellfish low in mercury and check the Environmental Protection Agency and the US Food and Drug Administration's Web sites for updates and local advisories about safety of local catch.
†A drink equivalent is equal to a 12-oz bottle of beer, a 5-oz glass of wine, or a 1.5-oz shot of 80-proof spirit.
‡Criteria for high risk include established CHD, cerebrovascular disease, peripheral arterial disease, abdominal aortic aneurysm, end-stage or chronic renal disease, diabetes mellitus, and 10-year Framingham risk > 20%.
§Criteria for very high risk include established CVD plus any of the following: multiple major risk factors, severe and poorly controlled risk factors, diabetes mellitus.19
‖Dietary supplement niacin should not be used as a substitute for prescription niacin.
¶After percutaneous intervention with stent placement or coronary artery bypass grafting within previous year and in women with noncoronary forms of CVD, use current guidelines for aspirin and clopidigrel.

TABLE 4. Class III Interventions (Not Useful/Effective and May Be Harmful) for CVD or MI Prevention in Women

Menopausal therapy
Hormone therapy and selective estrogen-receptor modulators (SERMs) should not be used for the primary or secondary prevention of CVD *(Class III, Level A)*.

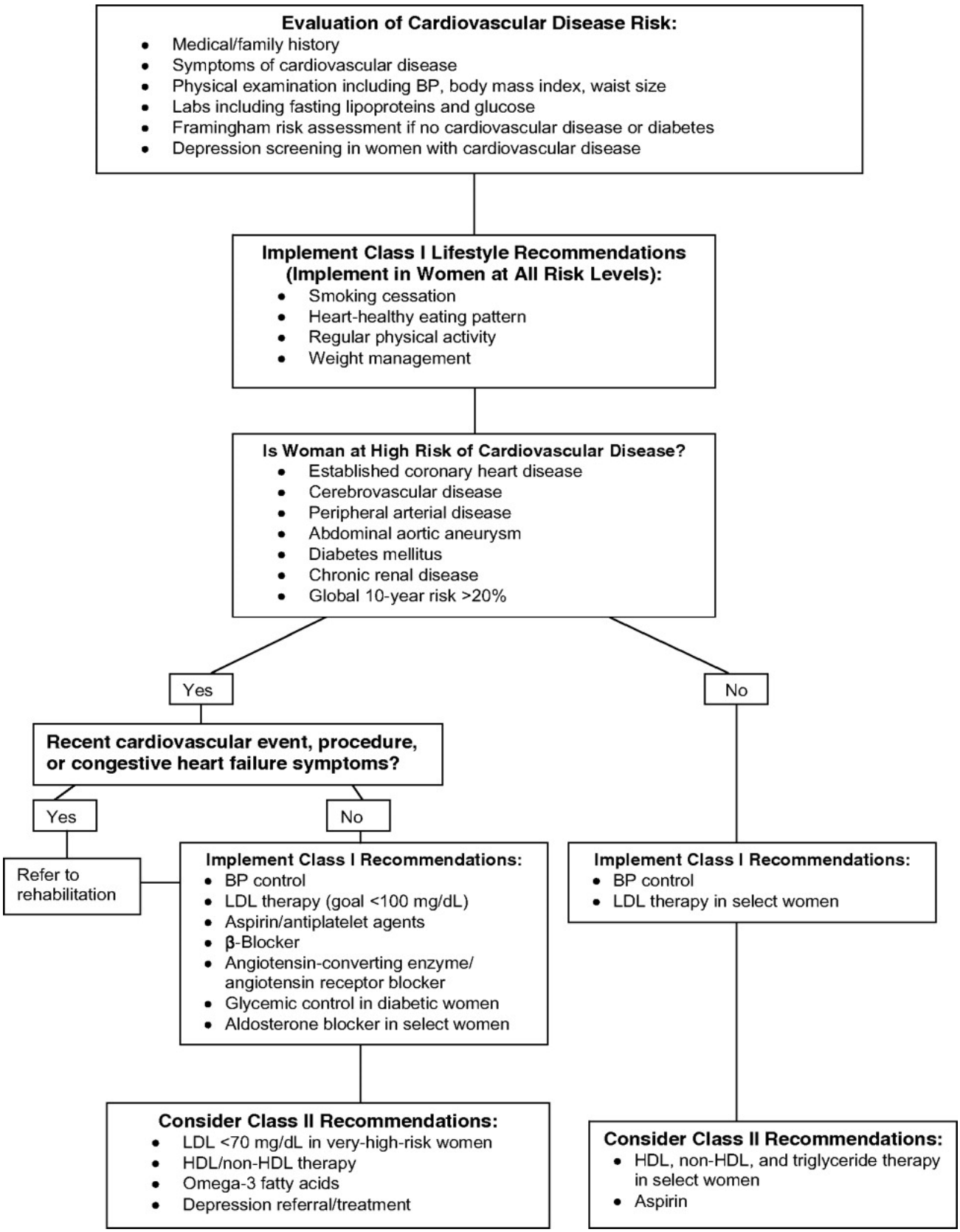
Antioxidant supplements
Antioxidant vitamin supplements (eg, vitamin E, C, and beta carotene) should not be used for the primary or secondary prevention of CVD *(Class III, Level A)*.

Folic acid*
Folic acid, with or without B6 and B12 supplementation, should not be used for the primary or secondary prevention of CVD *(Class III, Level A)*.

Aspirin for MI in women <65 years of age†
Routine use of aspirin in healthy women < 65 years of age is not recommended to prevent MI *(Class III, Level B)*.
CVD indicates cardiovascular disease; MI, myocardial infarction.

*Folic acid supplementation should be used in the childbearing years to prevent neural tube defects.
†For recommendation for aspirin to prevent CVD in women ≥ 65 years of age or stroke in women < 65 years of age, please see Table 3.

Algorithm for CVD Preventive care in women



A new study found that electrocardiogram (ECG) abnormalities in asymptomatic postmenopausal women are independently associated with increased risk for cardiovascular events and mortality.[3] They found that women with major ECG abnormalities were more than 3 times more likely to have an event than those with no ECG irregularities, independent of other risk factors. The authors conclude, " The presence of ECG abnormalities should prompt physicians to consider further risk stratification, more intensive therapeutic options, or both on modifiable risk factors for primary prevention of cardiovascular events."

The study cohort included 14,749 women. Major ECG abnormalities, occurring in 6.2%, included atrial fibrillation or atrial flutter, high-degree atrioventricular disassociation, left bundle-branch block, intermediate conduction delay, Q-wave myocardial infarction, isolated ischemic abnormalities, and left ventricular hypertrophy with ST-T changes. Minor ECG abnormalities, occurring in 27.8%, included first- or second-degree atrioventricular block, borderline prolonged ventricular excitation, prolonged ventricular repolarization, isolated minor Q and ST-T abnormalities, left ventricular hypertrophy without ST-T changes, and frequent atrial or ventricular premature beats. Women with these abnormalities were more likely to be older and have other CVD risk factors compared with women with normal ECGs. Compared with women without ECG abnormalities, minor and major abnormalities translated into an excess of 36 and 113 CV events per 10,000 women, respectively.

Conclusion: The ECG provides incremental information for risk stratification beyond traditional risk factors and given the low cost, wide availability and ease of interpretation, the ECG is an additional tool that can be used to assist in predicting CVD risk in asymptomatic postmenopausal women.

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[1] LORI MOSCA, ET AL. EVIDENCE-BASED GUIDELINES FOR CARDIOVASCULAR DISEASE PREVENTION IN WOMEN: 2007 UPDATE. ***J AM COLL CARDIOL*, MARCH 20 2007; 49:1230-1250.**

[2] M L Maiese. Single page adaptation of Framingham risk score from NCEP ATP Guidelines. Keying on Cholesterol reduction. *Heartbeat* 59, June 2001. www.sjhg.org. *Heartbeat.*

[3] Denes P, et al. Major and minor ECG abnormalities in asymptomatic women and risk of cardiovascular events and mortality. *JAMA* March 7 2007; 297: 978-985.