

Cardiovascular Risk Factors and Disease in Women



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KEYWORDS

• ASCVD • Heart disease • Stroke • Risk factors • Women • Prevention

KEY POINTS

- Use American Heart Association (AHA) and American College of Cardiology (ACC) guidelines and calculator to assess atherosclerotic cardiovascular disease (ASCVD) risk.
- Use evidence-based recommendations to counsel women on risk reduction strategies.
- Statin medications reduce risk for women at elevated risk but have important adverse effects to discuss with patients.
- Women have unique cardiovascular disease (CVD) risk factors, including hypertensive disorders of pregnancy, polycystic ovarian syndrome (PCOS), and migraine.

DEFINITIONS

Cardiovascular Disease

CVD means damage to or narrowing of arteries due to atherosclerosis. Therefore, it is a systemic disease that can lead to a variety of end-organ manifestations:

- Coronary artery disease (CAD) with or without acute coronary syndrome
- Heart failure (ischemic)
- Arrhythmia (atrial fibrillation)
- Stroke (especially related to carotid artery stenosis and cerebrovascular disease)
- Peripheral vascular disease (PVD)
- Aortic aneurysm
- Chronic kidney disease (CKD)

For purposes of discussing risk factors and primary prevention, CVD does not include valvular disease, pericarditis, endocarditis, nonischemic cardiomyopathy, or other arrhythmia (eg, supraventricular tachycardia).

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Statin

Statin is a medication class that inhibits HMG CoA reductase, thus blocking a key step in cholesterol synthesis. Originally used primarily to lower cholesterol, especially low-density lipoprotein (LDL), recently it has been found to lower overall ASCVD risk via incompletely understood beneficial effects on endothelial function, inflammation, and plaque stabilization.¹

Primary Prevention

Primary prevention refers to preventing development of a disease state that a person does not already have. In cases of ASCVD, it refers to preventing a first coronary event or stroke in a person not known to have ASCVD.

Secondary Prevention

Secondary prevention refers to preventing subsequent events or symptoms in a person known to have a disease.

Polycystic Ovary Syndrome

PCOS is a heterogeneous disorder of unknown etiology characterized by hyperandrogenism and anovulation, which present as insulin resistance, menstrual irregularity, infertility, obesity, hirsutism, and/or acne.

Number Needed to Treat

Number needed to treat (NNT) is a statistical representation of the likelihood of beneficial effect of a treatment, or “How many patients do I need to treat before I can expect to prevent 1 adverse outcome?” It is calculated from the absolute risk reduction: $1/(\text{adverse outcome rate with placebo} - \text{adverse outcome rate with treatment})$. For example, in a randomized controlled trial, if that study’s adverse outcome occurred in 5% of patients in the medication-treated group and 10% of patients in the placebo group, then $\text{NNT} = 20$.

Number Needed to Harm

Number needed to harm (NNH) is a statistical representation of the likelihood of a patient experiencing an adverse effect of an intervention, calculated from absolute harm reduction: $1/(\text{adverse event rate with treatment} - \text{adverse event rate with placebo})$.

INTRODUCTION

CVD and stroke are the most frequent causes of death in women. Knowledge among women themselves has improved (from 30% to 56% from 1997 to 2012), but this still leaves approximately half of women unaware that they are at highest risk of dying from heart disease or stroke as opposed to other causes, such as cancer (**Table 1**).²

Reducing cardiovascular risk in women may initially evoke questions, such as “When should we start aspirin in a diabetic woman?” and, “In whom should we start a statin?” These are important questions, but addressing CVD prevention completely must start much earlier, with questions for young women, such as, “Are your periods regular?” and “Did you have high blood pressure during pregnancy?” Obesity, smoking, PCOS, migraine history, and pregnancy complications should all be considered when assessing current and future cardiovascular risk and advising young women about choices that lead to lower versus higher risk later in life. For all women, the usual culprits must be addressed: obesity, smoking, hypertension (HTN), and

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