

Primary Care Docs Beware: We Can Prevent Heart Disease!

Jeff Unger, MD

When patients see their primary care doctor for their annual physical exam, anticipation builds as they await the results of their Pap smear, mammogram, or PSA level. The truth of the matter is that the incidence of cervical, breast, and prostate cancer is relatively rare in today's society. According to statistics from the American Cancer Society, 250,000 new cases of breast cancer, 190,000 new cases of prostate cancer, and only 13,000 new cases of cervical cancer were diagnosed in 2002. Screening for these life-threatening diseases is certainly appropriate and expected by our patients. However, we also should focus our attention on identifying those individuals who have a very high likelihood of developing coronary artery disease (CAD) and diabetes. There are an estimated 52 million Americans who have "insulin resistance syndrome" (IRS). Patients who have IRS have a 4 times higher risk of dying of heart disease and a 3 times higher likelihood of becoming diabetic.

Patients with CAD have a cluster of metabolic abnormalities, which can significantly increase their chances of dying from an acute

myocardial infarction or stroke. Insulin resistance syndrome has been described historically by a number of investigators. In the 1920s, a Swedish physician, Eskil Kylin, described a disorder characterized by the presence of hypertension, hyperglycemia, and hyperuricemia. In 1988, Gerald Reaven coined the term "syndrome X," which was later changed to "metabolic syndrome." In 2003, the American Association of Clinical Endocrinologists published guidelines for managing patients with IRS, so named for the primary metabolic abnormality in these individuals.

The metabolic abnormalities associated with IRS include hypertension, obesity, hyperlipidemia, hyperuricemia, proteinuria, insulin resistance, proinflammatory vascular disease, and nonalcoholic fatty liver disease.

A recent report derived from the National Health and Nutrition Examination Survey database (NHANES III) assessed the prevalence

of the syndrome in the US population using Adult Treatment Panel III (ATP III) guidelines. On the basis of these criteria, the age-adjusted prevalence of IRS among US adults was estimated at 23.7%. Rates were similar among men and women and increased with age. Among specific population groups, Mexican Americans had the highest prevalence (32%).

Patients with IRS do not have diabetes, but can progress over time to developing significant hyperglycemia. When insulin resistant individuals cannot produce enough insulin from pancreatic beta cells to maintain euglycemia, type 2 diabetes develops. However, even when insulin resistant patients secrete enough insulin to remain nondiabetic, they have an increased risk of developing the cluster of metabolic

TABLE 1. Metabolic Abnormalities of IRS

Plasma glucose:	
Fasting	110-125 mg/dL
120 min post-glucose challenge (75 g)	140-200 mg/dL
Triglycerides:*	>150 mg/dL
HDLc:*	
Men	<40 mg/dL
Women	<50 mg/dL
Blood pressure*+ Microalbuminuria**	>130/85 mm Hg Overnight urinary albumin Excretion rate >20 µg/min

IRS = insulin resistance syndrome; HDLc = high density lipoprotein cholesterol.

*Levels based upon 2001 National Cholesterol Education Program Expert Panel/Adult Treatment Panel III guidelines, *JAMA*. 2001;285(19):2486-2497.

**Criteria suggested by the World Health Organization.

TABLE 2. Risk Factors for IRS

- Body mass index >25*
- Waist circumference of >40 inches for men, >35 inches for women (10%-15% less for nonwhites)**
- A sedentary life-style
- Age >40 years
- Ethnicity: Hispanic, black, Native American, Asian American, Pacific Islander)
- A family history of type 2 diabetes, hypertension, or cardiovascular disease
- A history of glucose intolerance or gestational diabetes.

IRS = insulin resistance syndrome.

*Levels based upon 2001 National Cholesterol Education Program Expert Panel/Adult Treatment Panel III guidelines, *JAMA*. 2001;285(19):2486-2497.

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abnormalities that will heighten their risk of heart disease.

The importance of IRS as a cardiac risk factor has received increased attention since the publication of the 2001 National Cholesterol Education Program Expert Panel (NCEP III) on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults (ATP III). The ATP III has called for a more aggressive approach to lipid management in persons with established CAD or risk equivalents. Patients with ≥ 2 risk factors which confer a 10-year CAD risk of >10% should be managed aggressively. Table 1 lists the metabolic abnormalities associated with IRS.

Our primary care practices are filled with patients who are at high risk for developing IRS. Many of these high-risk individuals simply require a scale, tape measure, and blood pressure cuff to assess their risk of developing IRS. Table 2 lists the risk factors for IRS.

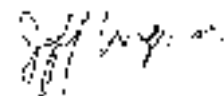
Not only should primary care providers be on high alert for IRS patients in their exam rooms, but

once identified, these patients should be treated aggressively. One should keep a close eye on family members who accompany the patient to the office visit. Can they be at high risk for developing IRS? As primary care physicians, we must stress the importance of life-style intervention and behavioral modification to our IRS patients. Obesity appears to be the root of all evil for our IRS patients. Yet, moderate exercise and 7 to 10 lb of weight reduction can significantly improve one's long-term outcome. Patients can be motivated to exercise by purchasing an inexpensive pedometer. If one walks 2,000 steps per day, as measured by the pedometer, he or she is most likely getting an adequate amount of daily exercise. If, however, the patient gets home for dinner and notes that the pedometer reads only 1,500 steps, taking a walk after eating would be advised. Simply eliminating 1 cookie or changing to diet colas might reduce caloric consumption by 150 calories per day. This will result in a 1 to 2 lb weight loss per month! Reducing one's weight will lower one's insulin resistance, improve glycemia, lipid levels, blood pressure, and uric acid levels, while reducing the proinflammatory state that leads to endothelial dysfunction and heart disease.

When evaluating metabolic parameters, physicians must treat patients to target. If a patient's low-density lipoprotein (LDL) is >100 mg/dL on a statin, the physician must be more aggressive with lipid therapy to lower the LDL to *below* 100 mg/dL. Also, aspirin should be prescribed for patients with IRS. In the future, we will know whether thiazolidinediones, angiotensin-converting enzyme inhibitors, and angiotensin receptor blockers will be helpful in managing patients with IRS. Blood pressure also should be aggressively managed even if multiple drugs are

needed to reach the target. Low blood pressure will reduce proteinuria and heart disease.

Primary care physicians should increase their awareness of IRS. As part of one's annual physical examination, parameters for IRS should be evaluated in high-risk patients. When patients are told they have IRS, they should feel reassured that the syndrome was picked up in time to allow for healthy life-style modification and risk reduction. Patients can begin a new healthy chapter in their lives, one that emphasizes healthy living, exercise, and vigilance toward preventing heart disease and diabetes. The emergence of IRS is among the most pressing public health problems today. Patients and their physicians must work together to meet this challenge.



Jeff Unger, MD
Associate Advisory
Board Member

FURTHER READING

- Executive Summary of the Third Report of The National Cholesterol Education Program (NCEP) Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults (Adult Treatment Panel III). *JAMA*. 2001; 285(19):2486-2497.
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