



RUSH UNIVERSITY
MEDICAL CENTER

www.rush.edu

Cardiovascular Prevention 2010

or how to avoid
heart attacks and
strokes

Presented by Steve Feinstein,
MD, FACC, FESC



IT'S HOW MEDICINE SHOULD BE®



*“To cure sometimes, to
relieve often, to comfort
always--this is our work.”*

Outline of presentation

- Cardiovascular risk factors
- Health care trends/Improved health
- Therapeutic life style changes (TLC)
- Medication
- Diagnostic imaging tests
- Summary

Traditional Cardiovascular Risks

- High blood pressure
- Smoking
- Premature CV deaths (men<55; women<65)
- Diabetes
- Elevated total cholesterol
- Low good cholesterol (HDL)
- Prior heart attack /stroke

Contributing risk factors

- Obesity
- Lack of exercise
- Poor diet choices

Obesity and diabetes in the developing world: Growing Challenge

- 58 Million people die each year from CV disease
- DM and HTN are the primary predisposing factors
- 1.3 Billion people are overweight, 312 Million are obese
- 155 Million children are overweight (data from International Obesity Task Force, WHO definitions)
- Over 90% of type II DM is linked with excessive weight
- 147 Million people have impaired glucose tolerance and will increase to 420 Million by year 2025; most notably in developing countries 84M to 228M

Nearly 1/3 of Americans (73 Million) have diabetes or are at risk

- > 65 years of age = 15.8% with diabetes
- USA Prevalence of diabetes = 9.3% (6.5% diagnosed and 2.8 undiagnosed)
- USA = 26% of the population have impaired fasting glucose

Magnitude of Cardiovascular/Metabolic Syndrome

>40 million subjects in the US, >150 million world-wide

Three (3) or one of the following:

- ▶ Body mass index >30
- ▶ Men waist > 42 inches; women >35inches
- ▶ Triglycerides > 150mg/dl
- ▶ HDL <40 men; <50 women
- ▶ Hypertension >130systolic or >85 diastolic
- ▶ Fasting glucose > 109mg/dL and <129mg/dL

Metabolic Syndrome and the Risk of Incident Cardiovascular Events and Death

- Relative risk 1.78 (95% CI 1.58-2.00)
- Women RR = 2.63 vs. 1.98 (men); 1/3 higher women vs. men
- Body mass, waist to hip, waist circumference = no difference
- Overall CV events and death: relative
- Metabolic Syndrome and the Risk of Incident Cardiovascular Events and Death: A systematic review and meta-analysis of longitudinal studies. JACC 2007;49:403. Gami AS, Witt BJ, Howard DE, Erwin PJ, Gami LA, Somers VK, Montori VM.

Childhood Body-Mass Index and Risk of Coronary Heart Disease in Adulthood

- Higher BMI during childhood is associated with an increased risk of CHD in adulthood.
- Our findings suggest that as children are becoming heavier worldwide, greater numbers of them are at risk of having CHD in adulthood.

Improved health care

And the good news...

Improved health care: It's about time

- Reduction in CV death by 50% (1980-2006)-26% since 1999
- Reduction in ST-MI and acute interventions
- 50% of the reduction in CV death was due to therapeutic life style changes
- 50% of the reduction in CV death was due to medical therapy

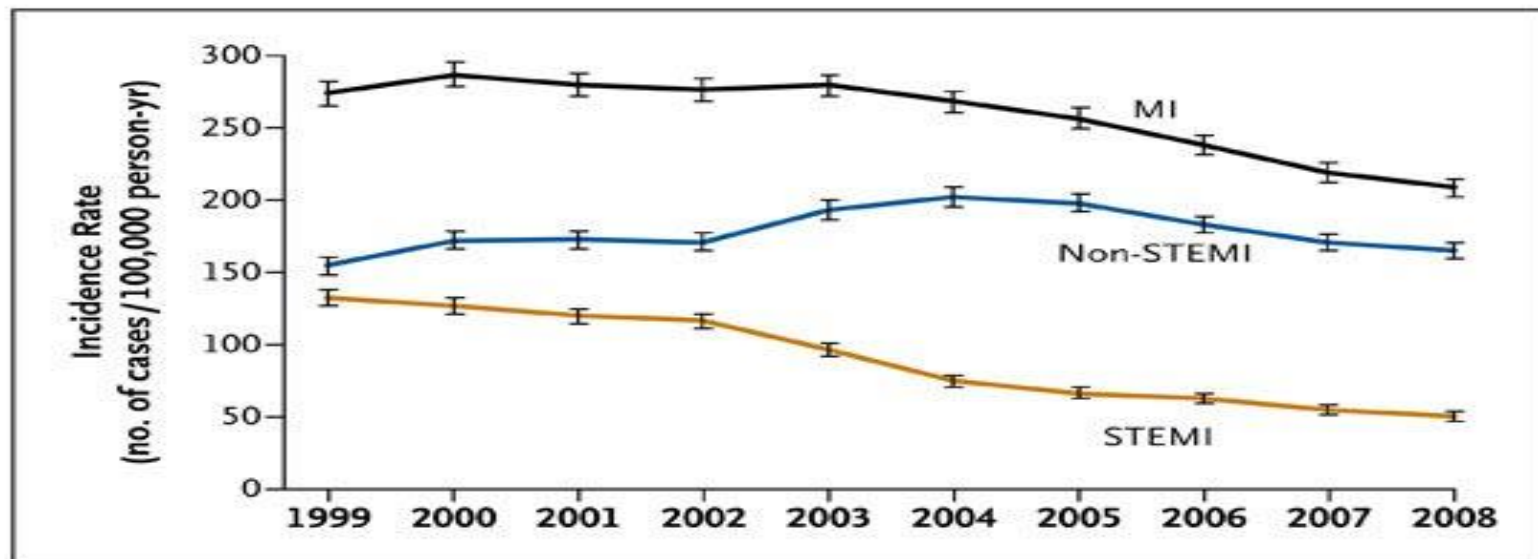
Heart Disease and Stroke Statistics—2009 Update

A Report From the American Heart Association Statistics Committee and Stroke Statistics Subcommittee

- National Health and Nutrition Examination Survey 2005–2006 (1999–2000 and 2005–2006)
- Death rates from CVD declined 26.4%. Preliminary mortality data for 2006 show that CVD accounted for 34.2% of all 2 425 900 deaths in 2006, or 1 of every 2.9 deaths in the United States. Every 25 seconds someone suffers from an MI
- Since 1980-2006 there was a 50% reduction in CV deaths; 50% due to TLC; 50% to medication usage
- 795,000 strokes; 1 of every 18 deaths, every 40 seconds. From 1995 to 2005, the stroke death rate fell 29.7%, and the actual number of stroke deaths declined 13.5%.
- Cardiac catheterizations: 1,000,000 patients in 1993 and in 2010 3,000,000 patients.

Population Trends in the Incidence and Outcomes of Acute Myocardial Infarction

- 46,086 patients 30 years of age or older MI 1999 and 2008
- 15,271 patients (33.1%) ST-MI; 30,815 patients (66.9%) non-STMI
- **ST-MI infarctions decreased from 47.0% in 1999 to 22.9%**



Therapeutic Lifestyle changes

- Diet-better choices
- Exercise
- reduce risk factors (smoking, control blood pressure, take medications, if indicated)

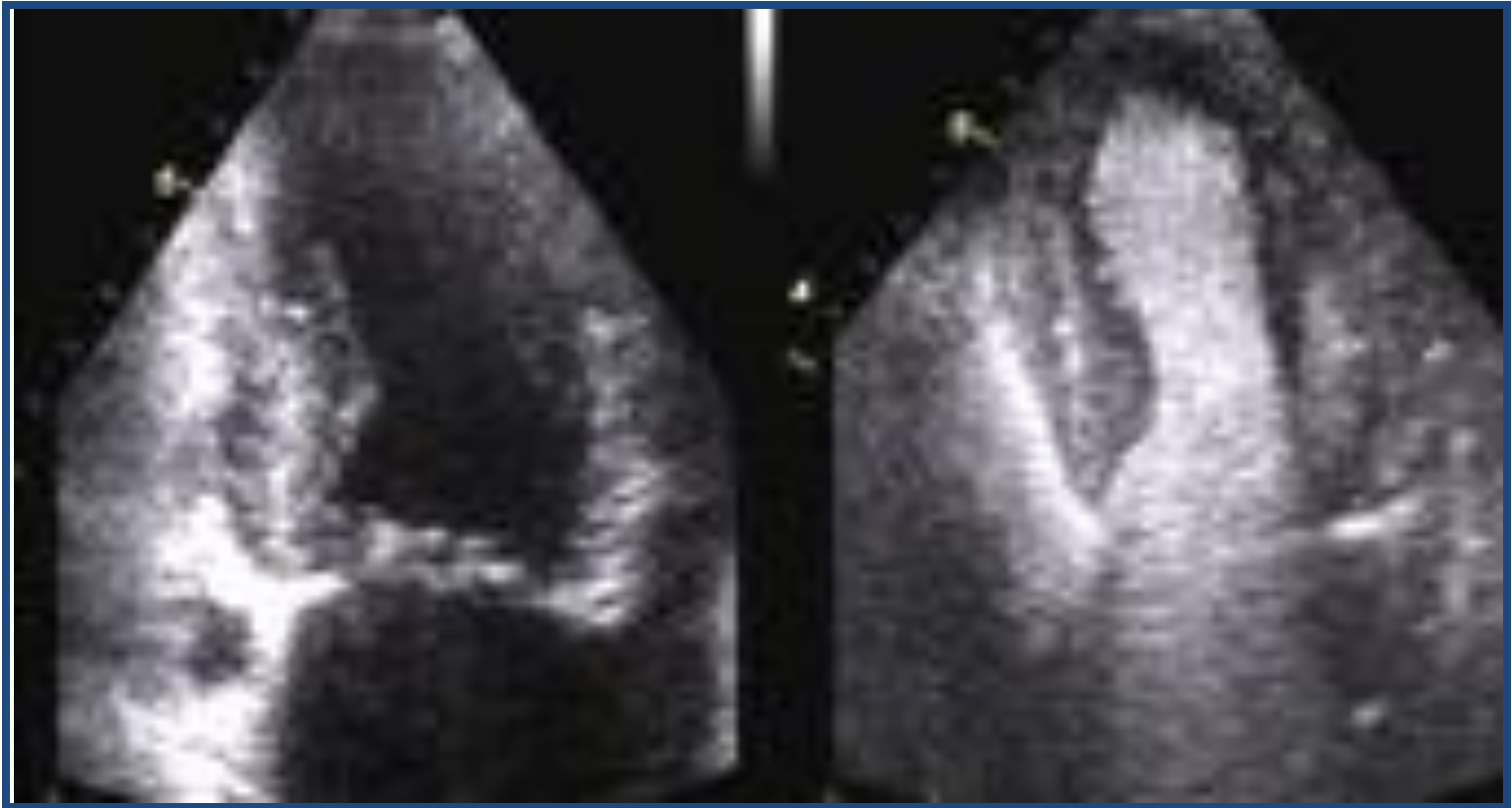
Dietary Strategies for Improving Post-Prandial Glucose, Lipids, Inflammation, and CV Health

- Processed, calorie-dense, nutrient-depleted American diet leads to post-prandial spikes in blood glucose and lipids leads to immediate oxidant stress which is directly proportionate to the increases in glucose and triglycerides
- Free radicals trigger inflammation, endothelial dysfunction, hypercoagulability, and sympathetic hyperactivity.
- These spikes are an independent predictor of CV future events in nondiabetic individuals
- Exercise and diet profoundly and immediately results in favorable changes
- Diet recommendations: low processed, high-fiber, plant-based foods (vegetables, fruits, whole grains, legumes, nuts, lean protein, vinegar, fish oil, tea, cinnamon) blunt spikes

Non-invasive testing for cardiovascular disease

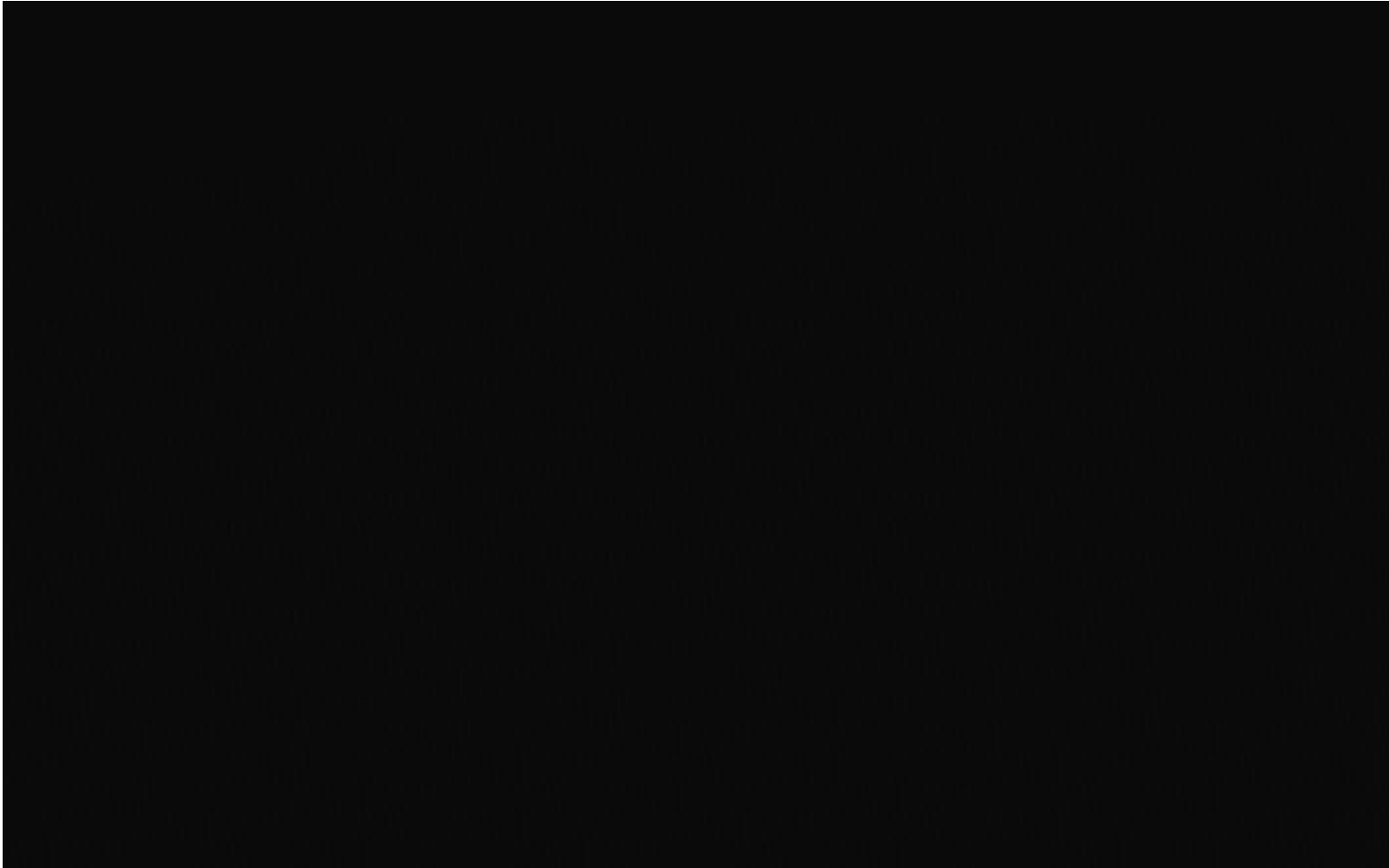
- Sound wave energy (echocardiograms)
- Nuclear imaging (radio-isotopes)
- Stress testing (treadmill or pharmacologic)

Sound wave imaging of the heart

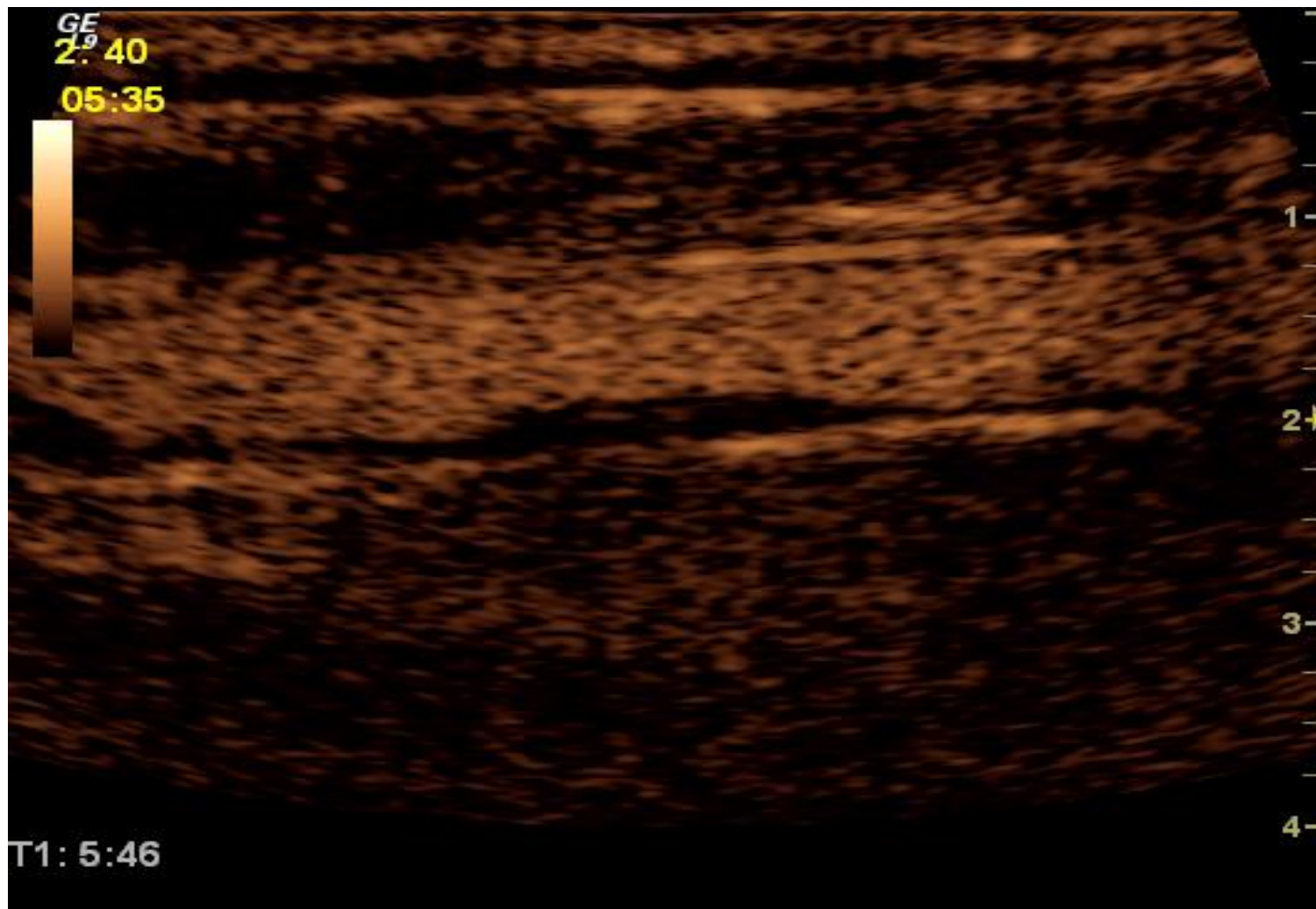


IT'S HOW MEDICINE SHOULD BE®

Cardiac Imaging



Carotid Imaging



Successful living: Best advice

- Inherit good genes!
- Don't smoke
- Exercise regularly (daily)
- Avoid excessive animal fats; eat more fish and veggies
- Take medications, if indicated, to control blood pressure and cholesterol

"Make no little plans, they have no magic to stir men's blood." Daniel Hudson Burnham, 1846-1912



Thank you