Re: High−normal fasting blood glucose in non−diabetic range is associated with increased coronary artery calcium burden in asymptomatic men

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- *From*: Susan <nevermind@xxxxxxxxxx>
- *Date*: Sun, 29 Jul 2007 23:20:34 −0400

x−no−archive: yes

MarilynMann wrote:

> High−normal fasting blood glucose in non−diabetic range is associated
> with increased coronary artery calcium burden in asymptomatic men

In the same vein:

Ann Intern Med 1998 Apr 1;128(7):524−33

Metabolic risk factors worsen continuously across the spectrum of nondiabetic glucose tolerance. The Framingham Offspring Study.

Meigs JB, Nathan DM, Wilson PW, Cupples LA, Singer DE
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BACKGROUND: Categorical definitions for glucose intolerance imply that risk thresholds exist, but metabolic risk for type 2 diabetes mellitus or cardiovascular disease may increase continuously as glucose intolerance increases. OBJECTIVE: To examine the distributions of the following metabolic risk factors across the spectrum of glucose tolerance: overall and central obesity, hypertension, low levels of high−density lipoprotein cholesterol, and increased triglyceride and insulin levels. DESIGN: Cross−sectional analysis. SETTING: The community−based Framingham Offspring Study. PARTICIPANTS: 2583 adults without previously diagnosed diabetes. MEASUREMENTS: Clinical data; fasting glucose, insulin, and lipid levels; and glucose and insulin levels taken 2 hours after oral challenge were collected from 1991 to 1993. Glucose tolerance was determined by 1980 World Health Organization criteria. Patients with normal glucose tolerance were categorized into quintiles of fasting glucose. The distributions of each metabolic risk factor and the metabolic sum of the six risk factors were assessed across seven categories from the lowest quintile of normal

fasting glucose level through impaired glucose tolerance and previously undiagnosed diabetes. RESULTS: The mean age of patients was 54 years (range, 26 to 82 years); 52.7% of patients were women. Glucose tolerance testing found that 12.7% of patients had impaired glucose tolerance and 4.8% had previously undiagnosed diabetes. Multivariable−adjusted mean measures of risk factors and odds ratios for obesity, elevated waist−to−hip ratio, hypertension, low levels of high−density lipoprotein cholesterol, elevated triglyceride levels, and hyperinsulinemia showed continuous increases across the spectrum of nondiabetic glucose tolerance. Although a threshold effect near the upper range of nondiabetic glucose tolerance could not be ruled out for triglyceride levels in men and for insulin levels 2 hours after oral challenge in men and women, no other metabolic risk factors showed clear evidence of thresholds for increased risk. CONCLUSIONS: Metabolic risk factors for type 2 diabetes mellitus and for cardiovascular disease worsen continuously across the spectrum of glucose tolerance categories, beginning in the lowest quintiles of normal fasting glucose level.

PMID: 9518396, UI: 98175274

Blood Glucose Concentration Linked to>Cardiovascular Risk in Nondiabetic Men>

WESTPORT,>CT (Reuters Health) Jan 04 − Increased glycated hemoglobin (HbA1c)>concentrations are predictive of cardiovascular mortality among all men,>not only those with diabetes, according to a report in the British>Medical Journal for January 6.

Dr. Kay−Tee Khaw and colleagues, from>the University of Cambridge School of Clinical Medicine, UK, collected>data on all−cause mortality and cardiovascular mortality in 4662 men, 45>to 79 years of age, who participated in the Norfolk UK cohort of the>European Prospective Investigation into Cancer and Nutrition>(EPIC−Norfolk). At baseline, from 1995 to 1997, HbA1c was measured and>the subjects were followed until December 1999.

As expected, Dr.>Khaw's group found that diabetic men had increased mortality for all>causes, cardiovascular disease and ischemic disease. They also noted that>HbA1c concentrations were "continuously related to subsequent all−cause,>cardiovascular, and ischemic mortality through the whole population." The>lowest mortality rates were associated with HbA1c concentrations below>5%.

Further, the group noted that a 1% increase in HbA1c was>associated with a 28% increased risk of death, which was independent of>age, blood pressure, cholesterol, body mass index and>smoking.

"Eighteen percent of the population excess mortality risk>associated with a HbA1c concentration of 5% or more occurred in men with>diabetes, but 82% occurred in men with concentrations of 5% to 6.9% (the>majority of the population)," Dr. Khaw and colleagues point>out.

The researchers propose that an elevated concentrations of>HbA1c is a marker for greater absolute risk among all men, and>"preventive

treatment with blood pressure− or cholesterol−lowering drugs>should be considered in such patients."

They point out that if>the population of nondiabetic men was able to lower its HbA1c>concentration by 0.1%, total mortality could be reduced by 5%, and if the>concentration could be lowered by 0.2%, then total mortality could be>reduced by 10% in this population.
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