THE PRO-DIABETIC IMPAIRED FASTING GLUCOSE IN NON-DIABETIC PEOPLE IS “ATHEROPROTECTIVE”, ONLY TO BE MODIFIED BY METABOLIC SYNDROME

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Background: Whether impaired fasting glucose (IFG) confers modest cardiovascular risk is controversial and needs further exploration.

Methods: A non-diabetic population-based sample was studied at 8.5 years follow-up for incident diabetes and coronary heart disease (CHD), using stratification by presence of metabolic syndrome (MetS) defined by modified ATP-III criteria.

Results: In 3181 adults (aged 52 ±11.5 years at baseline), analysis stratified by MetS, gender and IFG status distinguished normoglycemic subjects by a “hypertriglyceridemic waist” phenotype consisting of significantly higher waist circumference, fasting triglyceride and lower HDL-cholesterol, regardless of gender and MetS. Additionally, lipoprotein(Lp)(a) tended to be lower in (especially female) participants with MetS. Multivariable linear regression in a subset of the sample demonstrated decreased Lp(a) levels to be associated with increased fasting glucose and insulin concentrations, again particularly in women. In Cox regression analysis, compared with normoglycemia, baseline IFG adjusted for major confounders significantly predicted incident diabetes at a 3-fold HR in men, and only women with MetS. Cox models for developing CHD in 339 individuals, adjusted for conventional risk factors revealed that IFG status protected against CHD risk (HR 0.37 [95%CI 0.14; 0.998]) in subjects free of MetS, a protection that attenuated partly in male and fully in female participants with MetS.

Conclusion: Despite being diabetogenic, IFG status in non-diabetic people without MetS is associated with a less adverse cardiovascular risk profile and reduced future CHD risk, albeit to be modulated by the developed MetS. Autoimmune activation linked to serum Lp(a) likely underlies the modulating phenomenon.