BMJ, Glucose Tied to Hematopoietic Death

BY JEFF EVANS
Senior Writer

BETHESDA, MD. — High body mass index and high plasma glucose levels after an oral glucose challenge are independently associated with an increased risk of dying of hematopoietic cancer, particularly non-Hodgkin lymphoma (NHL) or leukemia.

“We are particularly focusing on non-Hodgkin lymphoma because according to Surveillance, Epidemiology, and End Results (SEER) data, the incidence of non-Hodgkin lymphoma in the United States has been increasing dramatically during the past 30 years,” from about 10 cases per 100,000 person-years in 1973 to 20 per 100,000 in 2002, said Dr. Chiu of the department of preventive medicine at Northwestern University, Chicago.

The increase has occurred in both men and women.

The prevalence of obesity has also increased at the same time, rising by 60% from 1970 to 1990 and by 74% from 1990 to 2002, according to data from the first three National Health and Nutrition Examination Surveys. The prevalence of diabetes has increased by about 60% during 1990-2004.

The current prospective study involved 35,420 people (average age 40 years) who participated in the Chicago Oral Glucose Challenge Project in Industry during 1967-1973. The study was originally designed to screen for cardiovascular disease risk factors.

At baseline, participants’ height and weight were assessed, as was blood glucose level 1 hour after they received an oral 50-g dose of glucose.

Dr. Chiu found that by the end of 2002, 129 study participants had died of NHL, 151 of leukemia, and 66 of multiple myeloma.

Men in the highest quartile of BMI (28.7 kg/m2 or greater) or in the highest quartile of postload plasma glucose (200 mg/dL or greater) were at about 2.5 times greater risk of dying from NHL than were men in the lowest quartiles. The risk was not significant for women in these groups. Both men and women in the highest quartile of BMI also were 2.2 times more likely to die from leukemia than were those in the lowest quartile.

Women, but not men, in the highest quartile of postload plasma glucose were significantly more likely to die from multiple myeloma than were women in the lowest quartile. The comparisons were adjusted for age, education, smoking status, race, and BMI or postload plasma glucose (depending on the comparison).

Dr. Chiu collected data on participant mortality, but not on the prevalence of hematopoietic cancers at baseline. He excluded people who died of a hematopoietic cancer within the first 5 years of follow-up. Although this methodology might miss some hematopoietic cancer survivors, he suggested that the number of people with such cancers at baseline would be small because the cancers are rare and all of the subjects were in the work force during screening.

Liver May Independently Drive Cardiovascular Disease, Studies Suggest

BY ROBERT FINN
San Francisco Bureau

SAN FRANCISCO — Recent research indicates that liver disease independently drives cardiovascular disease, Dr. Arun J. Sanyal said at the Third World Congress on Insulin Resistance Syndrome.

This relationship is so striking that Dr. Sanyal maintains, only half in jest, that “the liver is the boss of the heart.”

“The chronic and long-term relationship between insulin resistance and hepatic steatosis can have potential effects at the level of the endothelium, platelet aggregability, and atherosclerosis, all of which combine to produce cardiovascular disease,” said Dr. Sanyal of Virginia Commonwealth University, Richmond.

One longitudinal study demonstrated that altered liver enzymes predict the development of metabolic syndrome (Diabetes 2005;54:1340-7).

Among 33,532 non-HDL cholesterol-free of metabolic syndrome at baseline, 127 developed metabolic syndrome within 5 years.

Multivariate logistic regression models adjusting for age, sex, ethnicity, and alcohol consumption showed that subjects in the upper quartiles of gamma-glutamyltransferase (GGT) and alanine aminotransferase (ALT) and alkaline phosphatase (ALP) were at significantly increased risk of incident metabolic syndrome, compared with those in the lowest quartiles.

Another study looked at endothelial function in 52 patients with nonalcoholic fatty liver disease (NAFLD) and 28 age- and sex-matched controls (Hepatology 2005;42:473-80).

Compared with controls, patients with NAFLD had a significantly lower vasodilatory response of the brachial artery in response to ischemia. This response was significantly worse in patients with nonalcoholic steatohepatitis (NASH) than those with pure fatty liver.

In addition, the 10-year risk of coronary events as calculated by the Framingham equation was significantly worse in patients with NAFLD than in controls.

A third, longitudinal study examined the relationship between gamma-glutamyltranspeptidase (GGT) and incident hypertension (Hypertension 2005;46:1186-93).

Among 897 patients with normal GGT values, those in the highest quintile of normal were more than twice as likely to develop hypertension over 6 years than were those in the lowest quintile. The investigators noted that the association between GGT and hypertension was not due solely to alcohol consumption, and that fatty liver may represent an underlying mechanism.

Despite this accumulating evidence, Dr. Sanyal said that “the association between GGT and hypertension is not due solely to alcohol consumption, and that fatty liver may represent an underlying mechanism.”

A fourth study used 4,222 normal subjects without cirrhosis or hepatitis B or C and examined the relationship between hepatic steatosis and carotid plaques (World J. Gastroenterol. 2005;11:1848-53).

After adjusting for confounding factors, the investigators determined that individuals with fatty liver had carotid plaques more often than did those without fatty liver. They hypothesized that this phenomenon may be explained by metabolic changes from nonalcoholic fatty liver disease.

Despite this accumulating evidence, Dr. Sanyal called for more research on the underlying mechanisms of the relationship between fatty liver, metabolic syndrome, and cardiovascular disease.

“When this will give us terrible tactics to identify new ways of addressing this atherosclerotic disease in patients who also have fatty liver disease,” he said.