Amsterdam

Initiation of moderate daily alcohol consumption among patients with type 2 diabetes results in decreased fasting plasma glucose levels, particularly among patients with worse control at baseline, Iris Shai, Ph.D., reported at the annual meeting of the European Association for the Study of Diabetes.

Alcohol may inhibit hepatic glucose production—does as metformin—and also has been associated with beneficial cardiovascular effects. A recent meta-analysis of observational studies suggested that moderate alcohol consumption is associated with a reduced risk of coronary heart disease mortality among patients with type 2 diabetes, and that the beneficial association is greater than among nondiabetics (Diabetologia 2006;49:648-52).

But although several short-term intervention studies have found a decrease in fasting plasma glucose (FPG) levels in diabetic patients with moderate alcohol intake, other studies have not, said Dr. Shai, of the Ben-Gurion University of the Negev, Beer-Sheva, Israel.

A randomized, controlled intervention study to investigate the association was joint-sponsored by the Israeli Diabetes Research Group; Harvard University; the Tishbi Estate Winery, Israel; and Admiral Imports, Cedar Grove, N.J. A total of 109 initially nondrinking (defined as one drink or less per week) patients with type 2 diabetes aged 40-75 years were randomized to either 150 cc of wine (13 g alcohol, 100 kcal) or the same amount of nonalcoholic diet malt beer (0 g alcohol, 30 kcal) during dinner, both served in the same standard measured glass. Patients with the highest baseline HbA1c values experienced the greatest declines in FPG following moderate alcohol consumption. There was no change in FPG in the control group.

In contrast to the FPG, there were non-significant increases in 2-hour postmeal glucose levels, based on an average of self-measurements. Within the alcohol group, there were significant decreases in HbA1c (from 7.37% to 7.08%), LDL cholesterol (from 96.65 to 85.11 mg/dL), and waist circumference, but not in HDL cholesterol. These changes did not differ significantly between the two groups, however, she said. (HbA1c values dropped slightly in the controls, from 7.08% to 6.84%.)

Liver function biomarkers—including bilirubin, alkaline phosphatase, ALT, and AST—did not change significantly at 12 weeks in either group. In a long list of side effects to choose from, both groups reported feeling more “calm” after the study. The only effect checked off significantly more often by the alcohol group was an improved ability to fall asleep, Dr. Shai said.

At 6 months after the beginning of the study (3 months after its termination), 61% of the alcohol group thought that the alcohol was beneficial to them, and 49% were continuing to drink alcohol in moderation, ranging from one drink a week to one a day. Patients with type 2 diabetes aged 40-75 years were randomized to either 150 cc of wine (13 g, alcohol 100 kcal) or the same amount of nondiabetic diet malt beer (0 g alcohol) during dinner, both served in the same standard measured glass. The wine group could choose either red (merlot) or white (sauvignon blanc), said Dr. Shai, who is also a registered dietician.

Participants with the mete study coordinator eight times during the trial and with physicians and dieticians at weeks 1, 7, and 12. All study participants received individual dietary counseling, including identical nutritional strategies to achieve glycemic control without aiming for dramatic weight loss. Both groups were instructed to reduce their carbohydrate intake at breakfast and/or lunch but not at dinner, the wine group by 100 kcal and the controls by 30 kcal. Prior to each visit, the subjects completed self-reports of their food and drink consumption.

A total of 201 patients were screened, of whom 126 were eligible, 109 were randomized, and 91 completed the study. Dropouts were higher among the control group (26% vs. 12% of the intervention group). "Most were disappointed not to be assigned to the wine group," Dr. Shai said. The dropouts had significantly higher baseline FPG levels, she noted.

At baseline, the 61 men and 48 women who were randomized ranged in age from 41 to 74 years, had an average FPG of 143.6 mg/dL, a hemoglobin A1c (HbA1c) level of 7.39%, blood pressure of 133.7/76.5 mm Hg, and body mass index of 30.1 kg/m2. After 3 months, the alcohol group experienced a significant 9.2% decrease in FPG, from 139.6 to 118.0 mg/dL. Patients with the highest baseline HbA1c values experienced the greatest declines in FPG following moderate alcohol consumption. There was no change in FPG in the control group.

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Liver function biomarkers—including bilirubin, alkaline phosphatases, ALT, and AST—did not change significantly at 12 weeks in either group, although there was a "hint" of an increase in ALT (from 23.17 to 32.92 U/L) and AST (21.15 to 30.47 U/L) in the intervention group. The changes did not differ significantly between the two groups, however, she said. (HbA1c values dropped slightly in the controls, from 7.08% to 6.84%).