Model Predicts Effects of Sweetened Drinks

**San Francisco** — The increase in the consumption of sugar-sweetened beverages between 1990 and 2000 contributed to 130,000 new cases of diabetes and 14,000 new cases of coronary heart disease between 2000 and 2010, according to estimates from a computer model of the U.S. population.

In addition, the rising consumption of sugar-sweetened beverages, which include soda, sports drinks, and fruit drinks, led to an estimated 1.4 million additional life-years burdened by diabetes and 50,000 additional life-years burdened by coronary heart disease in the first decade of the 21st century.

To derive those estimates, Dr. Lit&sa K. Lambiros of the University of California, San Francisco, and her colleagues used data from the 1990-2000 National Health and Nutrition Examination Survey (NHANES) on consumption of sugar-sweetened beverages. They combined that with the Coronary Heart Disease Policy Model, a computer simulation of heart disease in U.S. adults aged 35-84 years.

According to that model, the relative risk of incident diabetes related to the daily consumption of sugar-sweetened beverages was 1.32 after adjusting for BMI.

**Major Finding:** Consumption of sugar-sweetened beverages contributed to an estimated 130,000 new cases of diabetes and 14,000 new cases of coronary heart disease between 2000 and 2010.

**Data Source:** Computer simulation based on the Coronary Heart Disease Policy Model.

**Disclosures:** Supported by a grant from the American Heart Association Western States Affiliate.

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SHBG May Explain Coffee-Diabetes Link

**San Francisco** — Sex hormone–binding globulin may be the key to the protective effect of coffee consumption against development of type 2 diabetes, according to an analysis of the Women’s Health Study.

Women who drank at least 4 cups of coffee per day were less than half as likely to develop diabetes than those who drank no coffee, and after adjustment for sex hormone–binding globulin (SHBG), the interaction disappeared.

It has been known for some time that women who drink coffee are significanificantly less likely to develop type 2 diabetes than are those who do not, and that the relationship between coffee consumption and diabetes is much less pronounced in men.

SHBG is a glycoprotein with a high affinity for testosterone and estradiol. SHBG levels tend to be substantially higher in women than in men, Atsushi Goto, a doctoral candidate at the University of California, Los Angeles, said at a conference sponsored by the American Heart Association. Previous studies have shown that variations in the genes controlling SHBG have a strong association with the development of diabetes and that coffee consumption increases plasma levels of SHBG.

To study this association, Mr. Goto and his colleagues used data from the Women’s Health Study, in which nearly 40,000 women were followed for a median of 10 years. During that time, 359 of the women developed diabetes. The investigators matched those women by age, race, and time of blood draw with 359 women who had not developed type 2 diabetes.

After adjustment for age, smoking, alcohol consumption, physical activity, past use of hormone therapy, total energy intake, fiber intake, body mass index, and plasma testosterone and estradiol levels, the investigators found that women who drank at least 4 cups of caffeinated coffee (300 mg caffeine) daily had significantly higher mean SHBG levels than nondrinkers: 27.3 nmol/L versus 24.5 nmol/L. Decaffeinated coffee was not significantly associated with SHBG levels.

Furthermore, when controlling for all of the above factors plus education levels and family history of type 2 diabetes, the investigators found that women who drank at least 4 cups of caffeinated coffee daily were 56% less likely to develop diabetes than were nondrinkers. However, when the investigators additionally controlled for plasma SHBG levels, the decrease in risk associated with coffee consumption became nonsignificant. This suggests that it is SHBG that mediates the decrease in risk of developing type 2 diabetes, Mr. Goto commented.

**Major Finding:** Women who drank more than 4 cups of coffee daily were 56% less likely to develop type 2 diabetes than women who drank no coffee, a significant difference. After adjustment for SHBG, the difference was not significant.

**Data Source:** Nested case-control study of 359 women with incident type 2 diabetes and matched controls from the Women’s Health Study.

**Disclosures:** Study supported by a grant from the National Institutes of Health.