Whole grain, bran intake associated with lower risk of death in diabetic women

May 10 2010

Women with type 2 diabetes who ate the most bran in a study had a 35 percent lower risk of death from cardiovascular disease (CVD) and a 28 percent reduction in death from all causes than women who ate the least amount, researchers reported in *Circulation: Journal of the American Heart Association*.

Bran is a component of whole grain rich in vitamins, minerals and fiber.

"To my knowledge, this is the first study of whole grain and its components and risk of death in diabetic patients," said Lu Qi, M.D., Ph.D., senior author of the study. "Patients with diabetes face two to three times the risk of cardiovascular disease and premature death compared to the general population."

Qi and his colleagues used data from 7,822 women diagnosed with type 2 diabetes, a condition in which the body usually produces insulin but can't use it efficiently to break down blood sugar. The women were diagnosed after age 30 and were enrolled in the Nurses' Health Study (NHS), a study of 121,700 U.S. female registered nurses that began in 1976. NHS participants answered questionnaires about their medical history, lifestyle and disease diagnoses every two years and completed food frequency questionnaires about every fours years.

During up to 26 years of follow-up, 852 deaths occurred, including 295 from cardiovascular disease in the diabetic women. The researchers used data from the food frequency questionnaires to calculate consumption of

whole grain and its sub-components of bran and germ, as well as cereal fiber, in grams per day. They then divided the women into five groups based on their consumption of whole grain and its components. Women who ate the most bran had 9.73 grams (median value) per day; those with the lowest consumption ate less than 0.8 grams (median value) per day.

After adjusting for age, the women in the top 20 percent for consumption of whole grain, bran, germ and cereal fiber were at reduced risk of death from all causes and from CVD compared to the women in the bottom 20 percent, Qi said. However, after adjusting for a range of lifestyle and factors such as smoking and physical activity, only the association with bran remained statistically significant and independent of those factors.

"These findings suggest a potential benefit of whole grain, and particularly bran, in reducing death and cardiovascular risk in diabetic patients," said Qi, assistant professor of medicine at Harvard Medical School and assistant professor of nutrition in the Harvard School of Public Health.

Women in the highest group for added bran had a 55 percent risk reduction for death from all causes and a 64 percent reduction in risk of CVD mortality compared to those who ate no added bran, Qi said.

Several possible mechanisms have been suggested for these findings. Additional investigations relating different sources of bran to beneficial effects on patients with type 2 diabetes are warranted in future studies.

A previous study by Qi's research group found that high intakes of whole grain and its components might protect against systemic inflammation and dysfunction of the endothelium — the cells that line the blood vessels and play an important role in blood pressure regulation.

"Diabetes is thought to be a chronic state of inflammation characterized by moderately increased levels of chemical markers for inflammation and endothelial dysfunction," Qi said. "Those markers have been found to be related to increased risk of CVD in both diabetic and non-diabetic populations. In our previous studies, we have reported that intakes of whole grains and subcomponents such as cereal fiber may lower these markers in diabetic patients."

Provided by American Heart Association