Study shows connection between diet and regulation of inflammation

December 3 2013, by Diane Kukich

Good sources of important nutrients are found in fruits and vegetables, available at UD's summertime farmers market.

Most people know that high cholesterol levels increase their risk for cardiovascular disease, but attention has recently turned to another chemical in the body, C-reactive protein, that may be an even better predictor of heart attack and stroke risk.

Produced in the liver and measured through a blood test, C-reactive protein, or CRP, is a marker for inflammation in the body. Chronic inflammation has been linked with cardiovascular disease and diabetes.

Now, the results of a study led by Marie Kuczmarski, professor in the Department of Behavioral Health and Nutrition at the University of Delaware, indicate that what people eat can directly affect their levels of CRP. The research used data from the National Institute on Aging HANDLS (Healthy Aging in Neighborhoods of Diversity across the Lifespan) study.

HANDLS is a community-based longitudinal study designed to examine how race, sex, and socioeconomic status influence age-related health disparities. Participants are African American and white adults, ranging in age from 30 to 64 at the beginning of the study, of diverse socioeconomic status and living in Baltimore.

"We found an inverse relationship between diet quality and CRP levels in low-income adults," says Kuczmarski. "The lower the quality of the diet, the higher the levels of CRP."

Kuczmarski explains that foods rich in antioxidants help the body to get rid of cell-damaging free radicals, providing a valuable line of defense against aging and disease. Antioxidant nutrients provided by the diet can protect the body from destructive free radicals.

"This work illustrates that poor diet is associated with both obesity and the development of the clinical inflammatory state, particularly among African Americans," says Dr. Michele Evans, co-principal investigator of the HANDLS study and deputy scientific director of the National Institute on Aging at the National Institutes of Health (NIH). "This association may in part explain the mechanism behind the role of diet in age-associated health disparities like cardiovascular disease and cancer."

What are the potential public health implications of the study?

Good sources of the nutrients in question are found in fruits, vegetables, and whole grains, and Kuczmarski admits that telling people to eat more of these foods is not a new message.

"Registered dietitians and public health nutritionists can provide people with advice on dietary antioxidants and health as well as on selecting foods to improve their diet quality and reduce their risk of inflammation," she says.

"But it's important to develop interventions that are easy to implement and that take into account the current diet of the specific population," she continues. "Many HANDLS participants who have high CRP levels eat a lot of sandwiches, so we need to focus on small changes like substituting whole grain bread for white bread, reducing the amount of deli meat, and adding some lettuce and tomatoes. These tweaks to the diet may go a long way toward reducing the high risk of obesity and disease that are associated with lower socioeconomic status."

Provided by University of Delaware