

Hostility, Fasting Glucose Linked in Black Women

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BALTIMORE — African American women with high levels of hostility show increased levels of fasting glucose. In addition, patients' proportion of trunk fat appears to play a role in the association between hostility and glucose metabolism, results from two posters presented at the annual meeting of the American Psychosomatic Society show.

In the first poster, Anastasia Georgiades, Ph.D., a research associate in the department of psychiatry and behavioral science at Duke University, Durham, N.C., and her colleagues recruited 400 healthy, nondiabetic individuals—101 African American women, 118 white women, 82 African American men, and 99 white men. Mean age was 33 years. Hostility was measured using the 27-item Cook Medley hostility questionnaire. Fasting and postprandial glucose and insulin levels were measured with an oral glucose tolerance test.

General linear modeling showed that African American women had consistent positive associations between hostility and fasting glucose, postprandial glucose, and postprandial insulin. In contrast, African American men showed negative associations. Stratified correlation analysis revealed that only African American women showed a significant positive association between hostility and fasting glucose.

The results indicate that hostility may have a greater impact on glucose metabolism in African American women, which could help explain racial and gender-based health disparities.

The second poster study built on these results, showing a consistent hostility/glucose metabolism association among African American women. Dr. Georgiades and her colleagues hypothesized that this relationship might be mediated by trunk fat, given that abdominal fat has been associated with both fasting glucose levels and insulin resistance.

For the study, the researchers recruited 44 African American and 77 white nondiabetic women. The women had either high (greater than 12) or low (less than 9) scores on the 27-item Cook Medley hostility questionnaire. The women underwent several assessments, including an oral fasting glucose tolerance test and dual-energy x-ray absorptiometry (DXA) scan. The researchers included DXA scans because body mass index is a rather imprecise measure of body fat and does not take into account the distribution of body fat. DXA technology gives a highly accurate estimate of percent body fat, and its distribution, Dr. Georgiades said in an interview.

After the researchers controlled for age and race, hostility was significantly associated with greater fasting glucose levels and greater percentage trunk fat but not BMI or fasting insulin for the entire cohort. The association between hostility and fasting glucose was significant for African American women and white women. No significant association was found between race and hostility with respect to fasting glucose. However, there was a significant interaction between race

and trunk fat with respect to fasting glucose. In other words, there was a significant correlation between fasting glucose and trunk fat in African American women but not in white women.

"It was clear that the African American women had higher percentage of trunk fat as compared to the [white] women, and that the association between trunk fat and fasting glucose was very strong in African American women, but was not evident in the [white] women," Dr. Georgiades said.

Controlling for trunk fat reduced the association between hostility and fasting glucose in African American women. A formal test of mediation revealed a significant mediating effect of trunk fat in the association between hostility and fasting glucose among African American women.

"We are not sure exactly why trunk fat mediated the association between hostility and glucose only in African American females. However, a previous study found that African American women have a high-

er density of β receptor in the fat tissue located around the inner organs as compared to [white] women," Dr. Georgiades said.

This could potentially make African American women more susceptible to the effects of adrenergic stimulation through stress hormones such as epinephrine and norepinephrine. Epinephrine stimulation of visceral fat tissue has been shown to induce lipolysis, bathing the liver with non-esterified fatty acids, and rendering it insulin resistant. ■

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