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AACE: Insulin Not Sodium May Be Hypertension's Bad Actor

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April 28, 2006

James H. Hays M.D. Christiana Care

CHICAGO - Insulin rather than salt is the major driver of hypertension, according to an analysis of data from a prospective study of 23 patients with confirmed atherosclerotic cardiovascular disease.



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MedPage Today Action Points

- Explain to patients who ask that weight loss in obese patients reduces cardiovascular risk factors including hypertension.

- This study was published as an abstract and presented at a conference. These data and conclusions should be considered to be preliminary as they have not yet been reviewed and published in a peer-reviewed publication. Additional AACE Coverage

In the study, obese patients consuming a high saturated fat diet increased daily sodium intake from less than 2 grams a day to more than 20 grams a day. But they also lost an average of 5.5 kg-or about 5% of their total body weight-in six weeks.

"At the same time there were dramatic and significant reductions in fasting insulin and in mean arterial pressure," reported James H. Hays, M.D., of the Christiana Care Health Services in Newark, Del., at the American Association of Clinical Endocrinologists meeting here today.

Dr. Hays said the finding strongly suggests that "we need to stop paying so much attention to sodium and pay much more attention to fasting insulin."

The patients in the trial were all put on a very high fat diet-50% of calories consumed came from saturated fat sources "mostly flesh of mammals," he said. And were told to avoid starch. There was, however, no caloric restriction. "These were free range humans who could consume as much as they liked," he said.

Dr. Hays and colleagues previously reported in the Mayo Clinic Proceedings that the patients achieved significant improvements in a number of cardiovascular risk factors, including reductions in total triglycerides, triglycerides, very low density lipoprotein (vLDL), and vLDL particle size. Additionally, while LDL and HDL concentrations were unchanged, there were significant increases in HDL and LDL particle size.

Among the findings reported today:

After six weeks, average fasting blood glucose was 98.3 mg/dL \pm 9.3 mg/dL down from 106.1 mg/dL \pm 9.3 17.7 mg/dL (P<0.05). At baseline, average fasting insulin was 21.3 \pm 12.2 microunits/ml, after six weeks it declined to 14.8 mu/ml \pm 5.7 mu/ml (P<0.05).

Mean arterial pressure decreased by an average of 5.5 mm Hg from 96 mm Hg at baseline to 88.5 mm Hg after six weeks of the high fat diet (P<0.05).

The patients in the study *"were all very high risk at baseline and were all taking a number of medications including a number of antihypertensive drugs,"* he said. "By the end of the study some patients were able to stop drug therapy and others were able to reduce their doses."

The study was limited by its post-hoc design and by the fact that sodium intake is based on dietary recall. But Dr. Hays said he is confident that patients significantly increased sodium consumption because *"despite the fact that we discouraged them from eating processed meats, many of them were eating a half pound of bacon and six eggs for breakfast."*

Dr. Hays said it is also possible that the real key to the success of these patients is the rapid weight loss. *"It all comes back to obesity,"* he said. Asked whether a similar weight loss achieved with a restricted calorie diet or a low fat diet could produce the same results, he agreed that it could.

"We are testing that hypothesis with a new study that will begin enrollment this summer," he said. "We will be comparing the high fat, no-calorie-restriction diet, to a low fat diet plus Xenical (orlistat)."

Asked to explain the rapid weight loss observed in the high fat study, he said that satiety is a factor. *"Steak at every meal sounds good, but it gets old."*

He said, however, that although he was once *"pretty close to a vegetarian, I do believe in this diet (high fat, red meat) and I do follow it myself."*

Primary source: American Association of Clinical Endocrinologists Endocrine Practice

Source reference:

Abdul-Rahman, M et al "A High-Fat Diet in Obese Patients Induces Weight Loss, Leads to Improved Insulin Resistance, and Lowers Systolic Blood Pressure Despite Marked Increase in Dietary Sodium Intake" Abstract 201 Endocr Pract 2006 12 (Suppl2) 50

Additional source: Mayo Clinic Proceedings

Source reference:

Hays JH et al "Effect of a High Saturated Fat and No-Starch Diet on Serum Lipid Subfractions in Patients with Documented Atherosclerotic Cardiovascular Disease" Mayo Clin Proc 2003;78;1331-1336.

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