Prediabetes Pushes Medical Costs 32% Higher

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SAN DIEGO — It pays to be proactive about preventing diabetes.

Data from a 9-year study of adults enrolled in a large HMO showed that annual health care costs for people with the highest prediabetic glucose levels were about 32% higher than costs for those who had normal blood glucose levels, Gregory A. Nichols, Ph.D., reported at the annual scientific sessions of the American Diabetes Association.

"Our data show that the American Diabetes Association's new lower cut point for impaired fasting glucose of 100 mg/dL identifies a set of patients with higher medical costs, greater cardiovascular disease, and more metabolic syndrome than normoglycemic patients," said Dr. Nichols, of the Kaiser Permanente Center for Health Research, Portland, Ore. From a cost standpoint, he added, "if diabetes prevention can truly be achieved, the attention to and treatment of hyperglycemia at a level earlier than diabetes might be warranted, and maybe the earlier, the better."

In a study funded by the National Institute of Diabetes and Digestive and Kidney Diseases, Dr. Nichols and his associate, Jonathan B. Brown, Ph.D., identified 28,335 members of Kaiser Permanente Northwest between January 1994 and December 2003 who had at least two fasting plasma glucose levels between 100 and 125 mg/dL but did not have diagnosed diabetes. The researchers matched these subjects with other HMO members of the same age and gender who had fasting plasma glucose levels below 100 mg/dL.

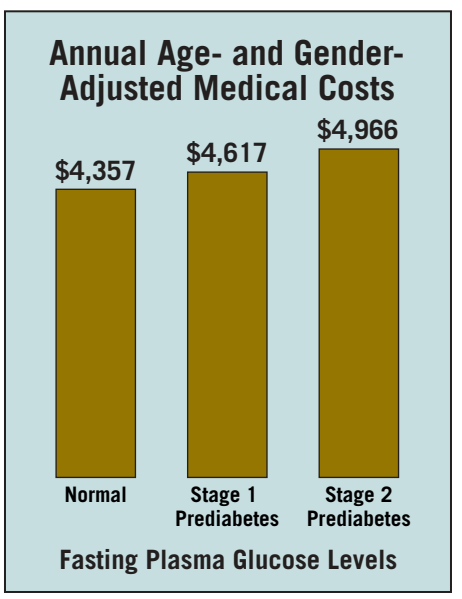
The investigators divided the subjects with elevated fasting glucose into two stages of prediabetes that represented the ADA's 2003 and 1997 cut points for impaired fasting glucose. They defined stage 1 prediabetes as 100-109 mg/dL, which represents the current ADA cut point. Stage 2 prediabetes was defined as 110-125 mg/dL, representing the old ADA cut point.

All subjects were then followed until one of the following events occurred: A subsequent blood test classified them as having a higher stage of prediabetes, they received an oral agent for diabetes indicating diagnosis of the disease, they terminated from the health plan, or they reached the end of the study on Dec. 31, 2003. The duration of follow-up averaged about 4.5 years. Most subjects remained in a single stage of prediabetes, but 3,281 progressed.

The investigators calculated inpatient, outpatient, pharmaceutical, and total costs incurred during subjects' individual observation periods. Dr. Nichols reported that the annual age- and gender-adjusted medical costs were $4,357 for patients with normal blood glucose levels, $4,617 for those with stage 1 prediabetes, and $4,966 for those with stage 2 prediabetes.

When patients who later progressed to impaired levels of fasting glucose or diabetes were removed from the analysis, the cost differences were even more marked. In this analysis, annual costs were only $3,799 for those with normal blood glucose levels, $4,580 for those with stage 1 prediabetes, and $4,960 for those with stage 2 prediabetes. This yielded a 32% difference in cost between those with normal blood glucose levels and those with stage 2 prediabetes.

The investigators also observed a higher prevalence of cardiovascular disease among patients with stages 1 and 2 prediabetes. "In addition, components of the metabolic syndrome—higher blood pressure, lower HDL, higher triglycerides, and higher body mass index—were all associated with increasing glucose stage," Dr. Nichols said. ■



Pages 30a—30b