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NATIONAL INSTITUTES OF HEALTH

National Institute of Diabetes and Digestive and Kidney Diseases

NIH NEWS RELEASE

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AFTERNOON BLOOD TEST MAY MISS DIABETES

Doctors who give their afternoon patients the fasting plasma glucose test are likely to miss half of the diabetes cases in this group, according to research published in "The Journal of the American Medical Association" on December 27. The American Diabetes Association currently recommends the fasting plasma glucose test for detecting type 2 diabetes. The test is diagnostic for diabetes if a person has a blood glucose level of 126 milligrams per deciliter (mg/dl) or higher, and a second test on another day confirms the same high level of blood glucose.

The recommendation is based on studies of plasma glucose measured in the morning after an 8-hour fast. However, many patients are seen in the afternoon after variable periods of fasting. In the "JAMA" study, researchers from the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) and Social and Scientific Systems, Inc., analyzed fasting plasma glucose levels taken at different times of day from adults participating in the Third National Health and Nutrition Examination Survey (NHANES III) conducted from 1988 to 1994. The researchers compared the plasma glucose levels of 6,483 people tested in the morning after a median fasting time of 13.5 hours to the glucose levels of 6,399 people tested in the afternoon after a median fasting time of 7 hours. Participants in both groups were otherwise similar in age, sex, race, weight, physical activity, waist-to-hip ratio, family history of diabetes, and other factors that may affect blood glucose levels.

The researchers found that fasting plasma glucose levels were consistently higher in the morning group compared to the afternoon, with an overall mean difference of 5 mg/dl. Moreover, the afternoon patients had blood glucose levels suggestive of diabetes at half the rate of the morning group. "If the current recommended criteria for diagnosing diabetes were applied to the afternoon patients, about half the cases of diabetes would be missed," says NIDDK's Dr. Maureen Harris.

To accurately detect diabetes in afternoon patients, the researchers suggest that the diagnostic standard of glucose levels for this group should be lower--114 mg/dl or greater instead of the current standard of 126 mg/dl or greater. In any case, the researchers advise physicians to confirm the diagnosis by repeat testing on a different day, preferably in the morning.

About 16 million people in the United States have diabetes, the most common cause of blindness, kidney failure, and amputations in adults. Type 2 accounts for about 90 percent of diabetes cases in the United States, and a third of

these cases are undiagnosed. Type 2 is most common in people who are overweight, inactive, age 40 and older, and have a family history of diabetes. The disease is also more common in minorities: African Americans, Hispanic/Latino Americans, American Indians, and some Asian Americans and Pacific Islanders are at particularly high risk for type 2. Many people can control their blood glucose by following a careful diet and exercise program, losing excess weight, and taking oral medication. However, the longer a person has type 2 diabetes, the more likely he or she will need insulin injections, either alone or combined with oral drugs.

About 10 percent, or 1.6 million of people with diabetes, have type 1, formerly known as juvenile onset diabetes or insulin-dependent diabetes. This form of diabetes, which usually occurs in children and adults under age 30, develops when the body's immune system attacks the insulin- producing cells of the pancreas.

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