Medical Xpress

Smoking associated with increased risk of diabetes

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A review of previous studies indicates that people who currently smoke have an increased risk of developing type 2 diabetes, compared with non-smokers, according to an article in the December 12 issue of JAMA.

A number of studies have examined the association between smoking and incidence of glucose abnormalities, and have suggested that smoking could be independently associated with glucose intolerance, impaired fasting glucose and type 2 diabetes, which could make smoking a modifiable risk factor for type 2 diabetes. However, it appears the quality and clinical features of these studies have not been fully assessed regarding this possible association.

Carole Willi, M.D., of the University of Lausanne, Switzerland, and colleagues conducted a systematic review and meta-analysis of studies describing the association between active smoking and the incidence of diabetes or other glucose metabolism irregularities. A search of databases yielded 25 studies, which were published between 1992 and 2006. The number of participants per study ranged from 630 to 709,827, for a total of 1.2 million participants. A total of 45,844 new cases of diabetes were reported during a study follow-up period ranging from 5 to 30 years.

Analysis of the data indicated that active smokers have a 44 percent increased risk of developing type 2 diabetes compared with non-smokers. Further analyses suggested a dose-response relationship between smoking and diabetes, with the association stronger for heavy

smokers (20 or more cigarettes/day; 61 percent increased risk) compared with lighter smokers (29 percent increased risk). The association also was weaker for former smokers (23 percent increased risk) than it was for active smokers.

"… we conclude that the relevant question should no longer be whether this association exists, but rather whether this established association is causal," the authors write.

They add that observational primary studies cannot prove causality, but that the studies in this review do meet several recommended criteria for causation. "First, there is an appropriate temporal relationship: the cigarette smoking preceded diabetes incidence in all studies. Second, the findings are consistent with a dose-response relationship, with stronger associations for heavy smokers relative to lighter smokers and for active smokers relative to former smokers. … Third, there is theoretical biological plausibility for causality, in that smoking may lead to insulin resistance or inadequate compensatory insulin secretion responses according to several but not all studies."

"Conversely, there are also possible non-causal explanations for this association. Smoking is often associated with other unhealthy behaviors that favor weight gain and/or diabetes, such as lack of physical activity, poor fruit and vegetable intake, and high alcohol intake," the researchers write.

"Considering the consistent finding of increased diabetes incidence associated with active cigarette smoking across a large number of studies, we believe that there is no need for further cohort studies to test this hypothesis. However, there is a need for studies that include detailed measurement and adjustment for potential confounding factors such as socioeconomic status, education, and exercise with a goal of establishing whether the association with smoking is causal. We recommend that

future studies focus on plausible causal mechanisms or mediating factors such as obesity, lack of physical activity, dietary habits, and stress levels."

Source: JAMA and Archives Journals