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The association between smoking and the 10-year incidence of diabetes among midlife women in the US: Analysis of Study of Women's Health Across the Nation data

Background: Diabetes mellitus is a serious public health concern, with smoking being an independent but understudied risk factor. This study examines whether women in the US who are current or former smokers are more likely to develop diabetes within 10 years compared with never smokers.

Methods: We test this hypothesis using 10 years of longitudinal data from SWAN, a longitudinal study of pre and perimenopausal women aged 42-52 years of age from 5 US states (n=1676 women) from years 1995-2008. Current smoking status was assessed through a self-reported questionnaire at baseline (1995-97), and diagnosis of diabetes was an aggregate of self-reported diabetes diagnosis since last visit every year for 10 years. All potential confounding variables like socio-demographics, behavioral factors and health status like BP were considered. We used chi-square test for bivariate analysis, and multivariate Poisson regression adjusting for potential confounding variables to examine the association between smoking status and diabetes.

Results: Diabetes incidence over 10 years was 29.87% for current smokers, 15.18% for former smokers, and 13.5% for never smokers. Compared with non-smokers, current smokers had twice the risk of diabetes in unadjusted regression (IRR 2.22, 95% CI (1.66-2.94), P<0.001) and 52% greater risk of in multivariate Poisson regression after controlling for other variables. Former smokers did not have higher diabetes risks than non-smokers.

Conclusion: These results finding an association with current but not former smoking with the 10-year incidence of diabetes, may provide further benefits to smoking cessation programs. Policy makers and workplaces should target smoking cessation interventions like pharmacotherapy & behavioral interventions among high risk individuals. Experiments of smoking cessation interventions & tobacco tax increase should evaluate wider health outcomes including diabetes prevention.