Association of Pediatric Dental Caries With Passive Smoking

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Context  Dental decay is the most common chronic disease of children and it disproportionately affects those living in poverty, but the reasons for this are not clear. Passive smoking may be a modifiable risk factor for dental caries.

Objective  To examine the relationship between dental caries and serum cotinine levels.

Design, Setting, and Participants  Cross-sectional data from the Third National Health and Nutrition Examination Survey (1988-1994) of 3531 children aged 4 to 11 years, who had had both dental examinations and a serum cotinine level measurement.

Main Outcome Measures  Passive smoking defined as serum cotinine levels of 0.2 to 10 ng/mL and caries defined as decayed (unfilled) or filled tooth surfaces.

Results  Twenty-five percent of the children had at least 1 unfilled decayed tooth surface and 33% had at least 1 filled surface. Fifty-three percent had cotinine levels consistent with passive smoking. Elevated cotinine level was significantly associated with both decayed (odds ratio [OR], 2.1; 95% confidence interval [CI], 1.5-2.9) and filled (OR, 1.4; 95% CI, 1.1-1.8) tooth surfaces in deciduous but not in permanent teeth. This relationship persisted after adjusting for age, sex, race, family income, geographic region, frequency of dental visits, and blood lead level. For dental caries in deciduous teeth, the adjusted OR was 1.8 (95% CI, 1.2-2.7) for the risk of decayed surfaces and 1.4 (95% CI, 1.1-2.0) for filled surfaces. We estimated the population attributable risk from passive smoking to be 27% for decayed and 14% for filled tooth surfaces.

Conclusions  There is an association between environmental tobacco smoke and risk of caries among children. Reduction of passive smoking is important not only for the prevention of many medical problems, but also for the promotion of children's dental health.