

Paper Session A1: The Influence of Health Disparities: A Call to Action

Early Childhood Caries in Urban Minority Children: Behavioral and Biologic Predictors of Risk

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Purpose: Early childhood caries (ECC) is the most common chronic condition of US preschoolers and is predictive of life-long caries risk. The study purpose is to compare characteristics of Hispanic low-income children 12-36 months with and without ECC to identify factors independently and cumulatively associated with risk. The goal is to determine a simple screening tool to facilitate dental care triage of young children in primary care settings.

Theoretical Framework: Social determinants of health.

Methods: We performed a secondary analysis of data from a case-control study of 471 Hispanic preschoolers in Washington Heights. Maternal caries experience and dietary information were obtained through parent interview. Following the interview, clinical examination by a single dentist determined presence/absence of caries; assessment of plaque on the maxillary incisors (scored 0-8); and mutans streptococci level in saliva. Data were analyzed using SAS 9.2 statistical software and included descriptive statistics, bivariate comparisons, and multivariate logistic regression models.

Results: The majority of the sample was female (71%) and age 24.7±6.6 months. Compared to caries free children, ECC children were younger (63 vs. 37% ≤24 months) had suboptimal fluoride (8.7 vs. 0%; adjusted Odds Ratio [aOR] 21.0, p=0.01), ≥3 sugar exposures in addition to meals (16.2 vs. 0%; aOR 35.7, p=0.001), mothers with history of dental caries (57 vs. 22%; aOR 6.2, p<0.001), greater plaque (83 vs. 46% score ≥4; aOR 6.1, p<0.001), and high levels of salivary mutans (37 vs. 2%; aOR 35.7, p<0.001). Controlling for age and fluoride, two risk models demonstrated increasing odds with higher total scores. Model 1 (maternal caries, plaque, and ≥3 sugar exposures) showed increasing risk with accumulation of factors (aOR 2.0 any one factor; aOR 25.5 with ≥2 factors). Model 2 (maternal caries, plaque, and ≥3 sugar exposures, mutans) improved prediction (aOR 5.3 any 1 factor; aOR 65.9 2 factors; aOR 190.4 ≥3 factors).

Conclusions and Implications: Screening for ECC has broad public health implications. Referral by a health provider is associated with greater likelihood of dental visits in young children. Assessment of two behavioral risk factors (maternal caries, sugar exposures) and clinical assessment of plaque and salivary mutans may provide non-dentists an efficient way to triage and prioritize young children for early dental referrals in primary care settings.