Children's Risk for Dental Caries. The most Common Chronic Childhood Illness.
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Objectives: this research examined the relationship between the occurrence of middle ear infections (OM) and the intake of systemic antibiotics during the first year of age, and after the first year with the development of early childhood caries (ECC) during the follow-up period. It also sheds some light on the effect of other infections including respiratory (RTI) and urinary tract (UTI) on early childhood caries.

Methods: the research is a secondary analysis of Medicaid medical, pharmacy and dental claims data during the years 2001-2004 for healthy children born in 2001, who had continuous Medicaid enrollment. Children's medical, pharmacy and dental claims data were merged by children's unique identifying numbers, which were identical in all data files. Middle ear infections (OM), RTI, and systemic antibiotics usage during the first year of age (and after the first year) were included as predictors in proportional hazards survival models to predict the risk of ECC after the first year of age. All models were controlled for gender and race.

Results: the study included 29,485 children, all born in 2001 with continuous enrollment during the study period. Of the included children 51.27% (n=15,113) were males, and 48.73% (n=14,372) females. By the end of the first year of age, 47% (n=14,036) of children had a diagnosis of OM, and 67.11% (n=19,787) had filled an antibiotic prescription. The proportion of black children who had OM during the first year of age was significantly lower than that among white

(χ^2=223.79, p=0.0001), or Hispanic children (χ^2=42.68, p=0.0001). Also, the proportion of black children who filled antibiotic prescriptions during the first year of age was significantly lower than that among white (χ^2=569.73, p=0.0001), or Hispanic children (χ^2=157.52, DF=1, p=0.0001). Children who had at least one episode of OM or RTI during the first year of age were at 29% increased risk for developing ECC after the first year of age than those who did not have OM or RTI (p=0.0001). When stratified by race, white and black children who had OM or RTI were found to have a 56% (p=0.0001) and a 20% (p=0.05) increased risk for ECC compared to white and black children who did not have OM or RTI. Children who took antibiotics during the first year of age were at 19% increased risk for ECC after the first year of age than those who did not take antibiotics (p=0.002). When stratified by race, white children who took antibiotics during the first year of age showed a 23% increased risk for ECC (p=0.03) than white children who did not take antibiotics. Having OM or RTI after the first year of age increased the risk for ECC during follow-up by 19% (p=0.002), and using antibiotics increased the risk of ECC by 20% (p=0.001) if taken during the age of 13-18 months.

Conclusions: OM, RTI, and systemic antibiotics intake during the first year of age, are associated with significant increase in the risk of ECC during follow-up. This association is affected by children's race and ethnicity.