Policy on Early Childhood Caries (ECC): Unique Challenges and Treatment Options

Originating Council
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2003, 2007, 2008, 2011, 2014*

Purpose
The American Academy of Pediatric Dentistry (**AAPD**), to promote appropriate, quality oral health care for infants and children with early childhood caries (**ECC**), must educate the health community and society about the unique challenges and treatment options of this disease, including the need for advanced preventive, restorative, and behavioral guidance techniques.

Methods
The proceedings of the Conference on Early Childhood Caries held in Bethesda, Md., in October 1997[1] were reviewed. The update of this policy used electronic and hand searches of English written articles in the dental and medical literature within the last 10 years using the search terms infant oral health, infant oral health care, and early childhood caries. When data did not appear sufficient or were inconclusive, recommendations were based upon expert and/or consensus opinion by experienced researchers and clinicians.

Background
ECC is highly prevalent and increasing in poor and near poor US preschool children.[2] In the US and most other countries, this disease is largely untreated in children under age three.[3] Those children with caries experience have been shown to have high numbers of teeth affected. Consequences of ECC include a higher risk of new carious lesions,[4,5] increased treatment costs and time,[6] risk for delayed physical growth and development,[7-9] loss of school days and increased days with restricted activity,[10,11] diminished ability to learn,[12] diminished oral health-related quality of life,[13] and hospitalizations and emergency room visits.[14-16]

Because of the aggressive nature of ECC, areas of demineralization and hypoplasia can rapidly develop cavitation. If untreated, the disease process can rapidly involve the dental pulpal tissue leading to dental infection and possibly life-threatening fascial space involvement. Such infections may result in a medical emergency requiring hospitalization, antibiotics, and extraction of the offending tooth.[17]

Prevention of ECC begins during the prenatal and perinatal periods.[18] Women should be advised to optimize nutrition during their pregnancy and the infant's first year, when enamel is undergoing maturation. Enamel defects are common in children with low birthweight or systemic illness or undernutrition during the perinatal period.[19,20]

Although enamel hypoplasia is a risk factor because the teeth are not as well formed, the etiology of ECC is bacterial. Mutans streptococci (**MS**) is the group of microorganisms most studied regarding the pathogenesis of ECC.[21] Children at high caries risk are colonized early by MS[22] that is transmitted most frequently from caregiver to child through salivary contact. The bacteria also can be transmitted between other members of a family or other children.[23] In association with the microbial etiology, high frequency sugar consumption is a caries risk factor. Caries-conducive dietary practices, including prolonged and/or frequent bottle or training cup feeding with sugar-containing drinks and frequent in between meal consumption of sugar-containing snacks or drinks (eg, juice, formula, soda), increase the risk of caries.[24]

Those children at risk for ECC should have care provided by a practitioner who has the training, experience, and expertise to manage both the child and the disease process. The use of anticariogenic agents, especially twice daily brushing with fluoridated toothpaste and the frequent application of fluoride varnish, may reduce the risk of development and progression of caries. Using no more than a 'smear' or 'rice-size' amount of fluoridated toothpaste for children less than three years of age may decrease risk of fluorosis. Using no more than a 'pea-size' amount of fluoridated toothpaste is appropriate for children aged three to six.[25] When determining the risk-benefit of fluoride, the key issue is mild fluorosis versus preventing devastating dental disease. Interim therapeutic

** The 2014 revision is limited to use of fluoride toothpaste in young children.*

restorations (**ITR**), using materials such as glass ionomers that release fluoride, are efficacious in both preventive and therapeutic approaches.[26,27]

Stainless steel crowns often are indicated to restore teeth with large carious lesions and extensive white spot lesions and, at this early age, are less likely than other restorations to require retreatment.[28,29] Low levels of compliance with follow-up care and a high rate of children requiring additional treatment also can influence a practitioner's decisions for a more definitive restorative management of ECC.[30]

The extent of the disease process as well as the patient's developmental level and comprehension skills affect the practitioner's behavior guidance approaches. To perform treatment safely, effectively, and efficiently, the practitioner caring for a child with ECC often must employ advanced behavior guidance techniques. These may include protective stabilization and/or sedation or general anesthesia. The success of restorations may be influenced by the child's level of cooperation during treatment, and general anesthesia may provide better conditions to perform restorative procedures. General anesthesia, under certain circumstances, may offer a cost-saving alternative to sedation for children with ECC.[31]

Policy statement

The AAPD recognizes the unique and virulent nature of ECC. Non-dental health care providers who identify ECC should either provide therapy or refer the patient to a licensed dentist for treatment and establishment of a dental home.[32] Immediate intervention is medically necessary to prevent further destruction, as well as more widespread health problems. Because children who experience ECC are at greater risk for subsequent caries development, preventive and therapeutic measures such as optimizing home care, ITR, more frequent professional visits with regimented applications of topical fluoride, and full crown coverage often are necessary. The dentist must assess the patient's developmental level and comprehension skills, as well as the extent of the disease process, to determine the need for advanced behavior guidance techniques such as protective stabilization, sedation, or general anesthesia.

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