## **Sweet Schizophrenia**

Sounds like the title for a new-age psychology self-help manual, doesn't it? What it may be is our most formidable obstacle to conquering Early Childhood Caries (ECC)—a beast so powerful, so seductive, and so tantalizing that it overwhelms every preventive approach known to dentistry!

At the turn of the century, we know more about why some children get ECC and others don't, but honestly, just a little more. We know with some certainty that dental caries seems tied to socioeconomic status, but whether that relationship is because of poor maternal diet leading to weaker teeth in offspring, more virulent microflora, or a generally poor infant diet high in sugar—or a combination of any or all of these remains to be demonstrated conclusively. We are only now beginning to look beyond the Keyes diagram to dimensions such as culture, societal pressure, and once again heredity to explain the stubborn persistence of ECC in children worldwide. Do we need to look further?

An article in our local newspaper, the *Columbus Dispatch*, (February 17, 2004), written by my former medical director and friend, Grant Morrow, MD, recently caught my eye. Dr. Morrow is a renowned pediatrician and neonatologist, and former president of the American Board of Pediatrics. He states that U.S. neonatologists have discovered that a small amount of sucrose placed sublingually has a measurable benefit in reducing the pain of minor medical procedures in the newborn nursery. For example, premature babies are given a little sucrose before blood is drawn. He also describes medical procedures, like immunization, which are tempered with sugar.

I flashbacked to a few months earlier, to a report by Marshall et al which describes the shift to sugared drinks in Iowa babies and preschoolers and a relationship to dental caries.<sup>1</sup> A few years further back, a study by Hammer et al<sup>2</sup> showed working parents in San Francisco keeping their children on the bottle well into their third year of life. Even further back in time, a generation in fact, studies of US naval recruits found those who were caries free reached "sugar satisfaction" at concentrations well below those of high-caries recruits. Numerous animal studies have demonstrated that offspring preferentially suckled high-sucrose sources when conditioned in utero with a sugared environment.

Is there a common thread here? We have perhaps naively assumed that the simple relationship between sugar and dental caries was just that. But maybe, just maybe, sugar has a stronger hold on dental caries than we imagined—an addiction for both child and parent. The former learns to need sugar to overcome life's little discomforts like teething, sadness, fever, and injury. The latter uses the sugared pacifier, sippy cup or nighttime bottle to catch a little respite in our demanding world using the calming effect of sugar. Little attention has been paid to the primary pain relief sugar offers as it relates to dental health, with our simple assumption that sugar's only function is to support bacterial metabolism. We have been unable to explain why, as shown in many studies, parents give their children sugared bottles at night in spite of knowing the effect on teeth! If we were to go back to the many studies that look at factors associated with ECC and overlay a screening of "stress" for child and parent due to lifestyle, poverty, and illness, would we find that sugar is a Jekyll and Hyde—a beneficial coping mechanism for families, as well as a caries-causing factor? Would we see young white middle-class moms in Iowa and 2-parent working families in California enjoying the "stress relief" of sugar—an inexpensive, legal, (and presumably safe) obtundant for life's little trials?

In March 2004, the American Academy of Pediatrics and American College of Family Physicians asked physicians to reduce antibiotic prescriptions for mild otitis media because of the growing problem of antibiotic resistant bacteria. If their plea is heard by physicians, tens of thousands of young children will undoubtedly not only be treated with sugar-containing pain medications in place of antibiotics, but they will certainly find comfort in a sugared bottle or sweetened pacifier!

It is probably not coincidence that parents in cultures without access to antibiotics were drawn to the sugared dummy to calm their children. To quote Mary Poppins, "A spoonful of sugar helps the medicine go down." We already know that ECC is prevalent in the US in populations immigrating here. Will we begin to see an increase in ECC in children as we fight mild infection without antibiotics and as economic volatility increases stress on parents? You can bet your "sweet" dummy on it!

- Marshall TA, Levy S, Broffitt B, Warren JJ, Eichenberger-Gilmore JM, Burns TL, Stumbo PJ. Dental caries and beverage consumption in young children. *Pediatrics* 2003;112:184-191.
- Hammer LD, Bryson S, Agras WS. Development of feeding practices during the first 5 years of life. *Arch Pediatr Adolesc Med* 1999;153:189-94.

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