

Nursing bottle weaning and prevention of dental caries: a survey of pediatricians

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Abstract

Numerous studies have documented the cariogenic effects of prolonged or nocturnal bottle feeding in children. Guidelines prepared by the American Academy of Pediatrics (AAP) suggest that pediatricians advise parents to begin bottle weaning when their child is approximately nine months of age and accomplish weaning soon after the first birthday. However, little information exists concerning the advice pediatricians give to parents about nursing bottle weaning. Information about bottle weaning advice was obtained from 127 pediatricians selected from the American Academy of Pediatrics (AAP) Fellowship listing (1985-86). The majority of respondents discussed bottle weaning with parents and recommended a specific age for accomplishment of bottle weaning. Bedtime bottle feeding was discouraged actively, mainly due to the increased risk of dental caries. Implications of the findings are discussed.

Introduction

Nursing bottle caries is the rampant tooth decay that may occur in young children who nurse frequently at night, or who nurse past the usual period of bottle weaning. Children who fall asleep with a bottle or who suck a pacifier dipped in sugar-containing sweeteners also are at risk for developing this condition. It is estimated that nursing bottle caries occurs in 3-6% of children younger than 3-4 years old (Derkson 1982; Feigal 1985; Lane and Sellen 1986). This condition can severely affect a child's appearance and compromise dental function.

A child's dental health can be influenced by members of the primary medical care team (e.g., pediatrician, family physician, nurse) who are in an excellent position to discuss nursing bottle issues with the parents long before the first dental visit. American Academy of Pediatrics (AAP) guidelines recommend that parents begin bottle weaning at approximately 9 months of age and accomplish weaning soon after the first birthday (AAP 1985). It also is recommended that sleeptime

bottle feedings be discouraged, especially after tooth eruption. If bedtime bottles are given, water is considered the only acceptable feeding substance (Feigal 1985). Physicians are obliged to counsel parents and disseminate information on the relationship between feeding practices and the painful, disfiguring condition of nursing bottle caries.

Although recent review articles in the pediatric literature have emphasized the importance of preventing bottle-related caries (Jolley and Pless 1981), it is not known how often physicians comply with the AAP guidelines on weaning, or what information is furnished to parents concerning the risk of nursing bottle caries. Thus, the purpose of this study was to gather information about pediatrician anticipatory guidance practices related to bottle weaning and associated dental caries.

Methods

Subjects

A computer-generated, random sample of 250 pediatricians was selected from the AAP Fellowship listing (1985-86). Participants in the survey were required to: be doctors of medicine; practice in the continental U.S.; and be general pediatric practitioners.

Procedure

A letter describing the research project and a 21-item questionnaire were mailed to the 250 pediatricians. The pediatricians were requested to complete the questionnaire and return it in an enclosed, self-addressed envelope.

Measure

The questionnaire consisted of items concerning various aspects of childhood bottle weaning. Demographic information on gender, years of practice, and per cent of professional time dedicated to teaching,

research, and service was obtained from all respondents. Other items focused on the pediatrician's reported practices with regard to bottle weaning. Specifically, the recommended age for weaning, techniques recommended for cessation of bottle feeding, and justifications for such recommendations provided by the pediatrician were assessed. Questions about advice provided to parents regarding bedtime bottle feeding also were included.

Results

Of the 250 questionnaires mailed, nine were returned due to incorrect addresses; nine were returned unanswered because the physician was a specialist and did not provide routine, primary child health care; four were returned unanswered because the physician was retired; and 127 were returned with completed responses. This resulted in a 56% response rate.

Respondents were mostly male (63%), with a mean of 15 years of practice (range: 0-40 years). The mean percentage of children younger than 5 years old seen by the respondents was 58%. The mean percentages of time dedicated to teaching, research, and service were 8, 4, and 78% respectively.

The majority of respondents (94%) reported discussing bottle weaning with parents. Approximately 80% recommended a specific age to begin and accomplish bottle weaning; the mean ages recommended for onset and accomplishment were 12.7 and 16.8 months, respectively. Reasons given to parents for ending bottle feeding included dental caries (15.9%), developmental milestones (6.3%), nutrition (1.6%), and dental malalignment (<1%). The most commonly reported practice was to provide parents with multiple reasons for stopping bottle feedings (72.2%, Table 1). Seventy-three per cent recommended a specific method for bottle weaning. Gradually reducing the number of bottles was the most common suggestion (52%), followed by abrupt cessation (17%), and techniques such as diluting the feeding substance or providing access to water only (4%).

Bedtime bottle feedings (i.e., intermittent feedings throughout the night or sleeping with a bottle in the mouth) were reported to be discouraged actively (94%). Reasons included dental caries (36.1%), difficulty with weaning (3.4%), lack of supervision during feeding (3.4%), dental development (1.7%), and aspiration (1.7%). Most pediatricians (39.5%) reported that multiple reasons were given to parents for not allowing bedtime bottles, including warnings about dental caries as part of the explanation (Table 2). When asked if a specific liquid was acceptable for bedtime bottle feeding, 37.6% of the respondents indicated that no liquids were acceptable, and 48% identified water as an accept-

TABLE 1. Justifications for bottle weaning

| <i>Per cent of Respondents Endorsing</i> | |
|--|-------|
| Multiple Reasons/Including Dental Caries | 68.26 |
| Dental Caries | 15.87 |
| Developmental Milestones | 6.35 |
| Multiple Reasons/Excluding Dental Caries | 3.97 |
| No Reason Noted | 2.38 |
| Nutritional Reasons | 1.59 |
| Dental Malalignment | 0.79 |
| Otitis Media | 0.79 |

TABLE 2. Justifications for discouraging bedtime bottle feeding

| <i>Per cent of Respondents Endorsing</i> | |
|---|-------|
| Multiple Reasons/Including Dental Caries | 39.50 |
| Dental Caries | 36.14 |
| No Reason Noted | 6.72 |
| Multiple Reasons/Excluding Dental Caries | 5.88 |
| Increased Difficulty With Bottle Weaning | 3.36 |
| Dental Development | 1.68 |
| Danger of Aspiration | 1.68 |
| Potential for Ignoring Emotional Needs | 1.68 |
| Lack of Parental Supervision During Feeding | 1.68 |
| Weight | .84 |
| Sleep Problems | .84 |

able liquid. Milk and juices were noted as acceptable liquids by 8% and 6.4% of the respondents, respectively.

The majority (91.3%) of respondents reported discussing toothbrushing practices with parents. When a specific age was recorded, the mean age recommended for introducing toothbrushing was 18.25 months ($SD = 8.06$). However, 15% of the pediatricians recommended that toothbrushing begin with the eruption of the first tooth.

Discussion

Data suggest that most pediatricians discussed bottle weaning with parents. Most of the physicians surveyed also recommended a specific age for both onset and accomplishment of bottle weaning. However, the mean age recommended for onset (12.7 months) and accomplishment (16.8 months) by this group is not completely in accordance with the AAP guidelines. Both ages are approximately 3 months later than those suggested by AAP. In their discussions with parents, most physicians reported that they provided several reasons for weaning that typically included dental caries as part of the explanation. No single, preferred weaning technique was identified by the majority of the respondents, although most recommended a technique.

Bedtime bottle feeding was discouraged actively by almost all respondents. A variety of reasons was noted for discouraging bedtime bottle feeding, with more than three-fourths of the physicians noting dental caries as one reason. In addition, most pediatricians reported discussing toothbrushing practices with parents.

In general, the pattern of findings is encouraging. Data are limited in that a small number of physicians was surveyed and responses were restricted to board-certified or -eligible pediatricians. It is not known if the results of the survey would differ if health care professionals other than pediatricians (e.g., family practitioners, pediatric nurse associates) had been included. It also is not known whether practitioners' verbal recommendations were reinforced with written materials on the topic.

The data presented here are not consistent with the authors' findings from a study of 173 mothers attending a primary care clinic. Only 11% of these mothers considered their children's physicians to be the primary source of information for bottle weaning practices (unpublished). Results of the present study indicated that pediatricians frequently present information to parents concerning bottle weaning and dental caries prevention. Further research is needed to determine the extent of this practice, to assess compliance with pediatrician advice, and to evaluate the effectiveness of physician advice in preventing nursing bottle caries. Given

the pediatrician's unique position, advice for preventing dental caries with early nursing bottle weaning, avoiding cariogenic feeding substances in the sleep-time bottle, and early toothbrushing are critical anticipatory guidance topics to be addressed. Further study is needed to determine how we can better guarantee that these topics are covered by the child's primary care physician.

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