Bottle Caries: A Nursing Responsibility

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The future role of nurses in North America may include significantly greater participation of nurses as resources for people seeking care. Conscientious fulfillment of that obligation requires greater attention to areas which nursing has not traditionally fully embraced; not the least important of these is dental health. In many areas of dental health, community health nurses are in a unique position to decrease risks to the well-being of clients. This is particularly so for their very young clients, who may not visit a dentist until the health of their teeth has been compromised, often due to "bottle" or "nursing" caries. This article outlines ways in which nurses can enrich their practice and recognize, prevent and deal with bottle caries.

Dental caries is not regarded as a serious threat to the well-being of children. However, bottle caries, (also known as 'nursing bottle mouth', 'night bottle syndrome' and 'nursing caries') may severely mar appearance and compromise dental function. About 3% of Canadian children under 4 years have this disease.

Bottle caries can be attributed to the stagnation of infant formula or other cariogenic substances on teeth, as when the child nurses formula (or breast milk) frequently during the night, or habitually uses pacifiers dipped in sweeteners. This "lifestyle disease" is usually associated with parental over-indulgence in sweets for the youngster. Children who may be predisposed to bottle caries include those with a history of premature birth, abnormal pregnancy, and recurring illness. Children in low socio-economic groups are also at risk, as are some ethnic groups: Native Canadian children have a prevalence of bottle caries approaching 50%.

The lesions are easily identified: the maxillary incisors initially show dull, white decalcification along the gum line, later developing into decay encircling the neck of the tooth. Frequently, the gingival tissues are inflamed. The four lower incisors are typically unaffected initially, being protected by the lower lip and tongue and the proximity of salivary glands. Caries usually begin so soon that parents may report the teeth erupted "like that" (Fig. 1).

Left untreated, the condition can lead to pain and infection, premature loss of teeth, "tongue thrusting", abnormal swallowing habits and speech difficulties. Treatment may vary. In severe cases, the child requires extensive dental treatment. The health care professional must focus on parents' behavior or these children will remain susceptible to caries. Once better dietary habits are implemented, there are often dramatic improvements: less irritability (associated with better sleep), improved appetite and weight gain.

Upon learning the cause of bottle caries, parents may feel guilty, or indignant about not having been warned sooner. Public Health Nurses can do some of the warning: they contact many families with young children. Nurses could ameliorate the course of this disease. Many situations, such as post-natal visits or prenatal classes, present "teachable moments", when parents are ready to learn about healthy dental habits. Information which nurses can impart to parents includes the following.

Carbohydrates and Acid
Fermentable carbohydrates act as a substrate for bacterial plaque to metabolize and produce acid. When carbohydrates are ingested, the oral pH is lowered, producing an "acid attack" on the teeth during which demineralization of...
teeth may occur. Even foods without high refined sugar content (such as natural unsweetened fruit juices) create an acid environment for the teeth. Foods with refined sugars produce severe acid attacks as they are metabolized easily by the bacteria in plaque.

Carbohydrates play another role: diet influences the type of oral bacteria. A high carbohydrate diet predisposes the oral cavity to bacteria that produce the acid which demineralizes teeth. Diets high in protein, on the other hand, foster bacteria that break down protein. Therefore, sugar taken by persons on high protein diets will not have as detrimental effect on the teeth as it would for those on high carbohydrate diets.

The child must not be allowed to fall asleep nursing a bottle that contains anything other than water, as the fluid will pool in the mouth causing an extended exposure time, during which the teeth will be demineralized if carbohydrates are present. Further, saliva is less abundant during sleep; ordinarily, saliva reduces the risk of caries, by causing an increase in the swallowing rate, and diluting and buffering organic acids produced in the dental plaque. But saliva flow decreases markedly during sleep. Therefore, “bottle propping” puts tooth enamel in jeopardy. Encourage parents (even breast feeding mothers) to hold the child for feedings — not only does this promote bonding, it helps prevent bottle caries.

Detection of Caries

Parents should be advised of the importance of regular dental visits, and to inspect the child’s teeth frequently themselves for dental caries.

1. Inspect the teeth for unusual signs. Dull white or chalky areas may mean early decalcification. As the lesion progresses it will take on shades varying from yellow to brown and black and increase in size. In the case of suspect signs, the parents should have the child’s teeth checked by a dentist.

2. Use a bright light to make any lesions easier to see.
3. Dry the teeth with a tissue or gauze while holding the tongue and cheeks away from the teeth with the fingers of the other hand to aid in detecting early caries.

Care of the Child’s Teeth

Good oral hygiene will help to reduce caries formation and periodontal disease. Oral hygiene should begin at birth and care must be carried out by an adult until about the age of seven.18
1. Wiping the infant’s gum pads with gauze squares will remove debris and bacteria.
2. As the teeth erupt, they should be wiped with gauze until they have erupted fully enough that the gums will not be traumatized by a toothbrush.
3. When the erupted teeth can be brushed, the parent should brush them using a child’s soft-bristled toothbrush. As the child is learning toothbrushing, the parent should supervise and check, brushing areas that have been missed.
4. Pediatric Fluoride supplements are available by prescription to extend protection to infants where there is no fluoridation of drinking water, or for breast fed infants, since the Fluoride supply through breast milk is low.

Conclusion

Some nurses may be inclined to overlook dental health. The dentist, however, is not well placed to prevent bottle caries; if parents delay taking children for dental visits until three years of age or older, the disease may be well advanced. Public Health Nurses are ideally suited for a greater role in preventive dentistry. They can effectively detect carious lesions and teach about diet and home dental care practices, and about the need for early and regular children’s visits to the dentist. As the only health care professional with whom some parents come into contact in their children’s early years, Public Health Nurses have a particular responsibility.

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REFERENCES

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