Prevalence of Dental Enamel Hypoplasia:
its Nature and Etiology in Northern Jordan

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Abstract

The purpose of this study is twofold. Firstly, to examine the prevalence of dental enamel hypoplasia (a type of enamel defects which occurs when the disturbance in development takes place during enamel matrix formation) in three distinct environmental areas in northern Jordan. These are: Desert (Rawdat Basma), Rural area (Saum) and Urban center (Irbid). Secondly, to examine all etiologic factors that may be involved in the prevalence of this disease in the three areas.

The sample studied consisted of three groups of children aged 13 year-old. The groups are made up of 188 boys and 189 girls.

The main findings of this study were as follows:

1- The prevalence of enamel hypoplasia was seen in 64.7% of the examined school children.
2- The prevalence of enamel hypoplasia was greater among boys (72%) than among girls (57%).
3- The highest prevalence of enamel hypoplasia was found among Bedouins (78.7%) and Rurals (70.5%), while the lowest prevalence was found among Urbans (42.9%).
4- Lines were the most observed type of defect (94.4%).
5- The most dominant tooth involved with enamel hypoplasia was the upper central incisor (52.5%).
6- The prevalence of enamel hypoplasia at the developmental age of the tooth at the time of the occurrence of defects was found very high at the second and third year of the children's life.
7- The factors involved in the prevalence of this disease can be summarized as follows:

   A. Social Factors:

   a. Parity: the highest prevalence of enamel hypoplasia was found among those of 2nd parity (17.2%).
b. Feeding form: the highest prevalence of enamel hypoplasia was found among those who had breast feeding (42.5%).

c. Family size: the highest prevalence of enamel hypoplasia was found among families with 9 members (18.9%).

B. Ecological Factors:

a. Nutritional: 1. Economic Standard: 50% of the Bedouins were of low economic level, while 24.5% of Rurals and 5% of Urban were of low economic level.

2. Food expenses: the effect of food expenses per month on the nutritional needs were studied. The results showed that 51.1% of lower economic level of the Bedouins spent less than JD 50 per month, while, the percentages of the Rurals and Urban of the same economic level were 33.3%.

b. Health status: the prevalence of enamel hypoplasia among the three groups is directly proportional to the occurrence of diarrhea, measles and coeliac diseases.

8. No relation was found between the prevalence of enamel hypoplasia and period of pregnancy, mode of delivery, period of feeding, medical insurance, weight at birth, tetanus, viral infections, rubella diseases, diabetes and nephritic diseases.

9. The etiology of enamel hypoplasia was seen to be idiopathic in the factors which were examined explain only 15% of the actual causative reasons for the existence of enamel hypoplasia.

After discussing various factors that were assumed to be associated with the presence of enamel hypoplasia (social and ecological), it was found that these factors varied from one group to another but seemed to be interrelated in leading to enamel hypoplasia. Thus, the recognition of the contribution of these factors is important in trying to prevent high prevalence
of enamel hypoplasia in these areas.

The parents should have routine check up for the various types of dental diseases for their children and should not deal with folk medicine instead of the consultation of a professional specialist. In addition, pregnant mothers should have basic knowledge of health education in terms of the value of food intake and medical care. The government health agencies should also start with intensive sessions with regard to nutritional requirements needed for those living in desert and rural areas. Moreover, the government should increase the number of health workers through increasing the number of medical centers and dental clinics and provide them with skilful physicians and dentists.