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SOCIO-DEMOGRAPHIC AND ENVIRONMENTAL FACTORS AND THEIR INFLUENCE ON THE APPEARANCE OF THE ENAMEL HYPOPLASIA

***Abstract.** Enamel hypoplasia is a developmental defect that manifests itself through disorder of the growth of the organic matrix, as a result of harmful factors action on the dental follicle during development and mineralization. These factors lead to the disorder of tooth embryogenesis manifested by nonspecific disorders of the process of formation of dental tissues. The vice is formed as a result of a wide variety of stressors that can hardly affect ameloblasts, and in severe cases – odontoblasts. The teeth that formed and mineralized in the same period of time when the stress factors acted are affected likewise. On the one hand deficiency due to systemic factors are more likely to disorder most teeth on the arcade. On the other hand, hypoplasia caused by trauma or a local infection can affect one or adjacent teeth. Our study was made based on 82 patients examined in the "Emilian Coțaga" National Clinical Children's Hospital. Of these, 38 male and 44 female aged from 8 to 17 years old. There were statistically processed data of clinical examination and medical records of all patients.*

***Keywords:** enamel hypoplasia, stress factors, mineralization.*

Introduction. There are two types of enamel hypoplasia – hereditary and environmental.

Hereditary hypoplasia etiology:

- Genetic disturbance
- Maternal disease
- Premature birth

Environmental hypoplasia etiology:

- Malnutrition

- A, C and D vitamin deficiency
- Local trauma of the tooth
- Celiac disease
- Cerebral palsy due to maternal or embryo infection.

Common categories of hypoplastic disturbances are pit-form, plane-form, linear-form, and localized form.

Background and aim. Most epidemiological studies emphasize the frequency of emergence of enamel defects that is growing in all countries. The range of appearance of enamel hypoplasia in the world varies from 20% to 50% in primary dentition and up to 65% in permanent teeth.

The etiology of these defects is not completely clear that means that the purpose of this study is is to renew statistic data about the prevalence of enamel hypoplasia in temporary and permanent teeth due to various factors and to reveal the most common form of hypoplastic defect.

Material and Methods. The study was based on 82 patients aged from 8 to 17 years old that were examined in the “Emilian Coțaga” National Clinical Children’s Hospital. Firstly, before examination, all children were asked to brush their teeth, supervised by the doctor. The teeth were dried with a sterile gauze pad and use the artificial light to examine the denture. Detected enamel defects were ranked according to FDI classification. It will help us to differentiate the insufficiency in the quantity of enamel structures or the defect that develops as decrease of the translucency of enamel. That can be further ranked as defects with well define borders (Fig.1a) and defects with diffuse opacity (Fig.1b)



A

B

Fig. 1. Demarcated and diffuse opacity

Results. According to our study, all sociodemographic and developmental factors became eloquent when statistic processed. So, childhood diseases have been linked with hypoplastic defects (table 1) as the low birthweight children presents a significant increase of dental hypoplasia (table 1,2). Habitation of dental plaque, that indicates a poor oral hygiene have been linked with more hypoplastic injuries as well, than their equivalents with less plaque (table 1).

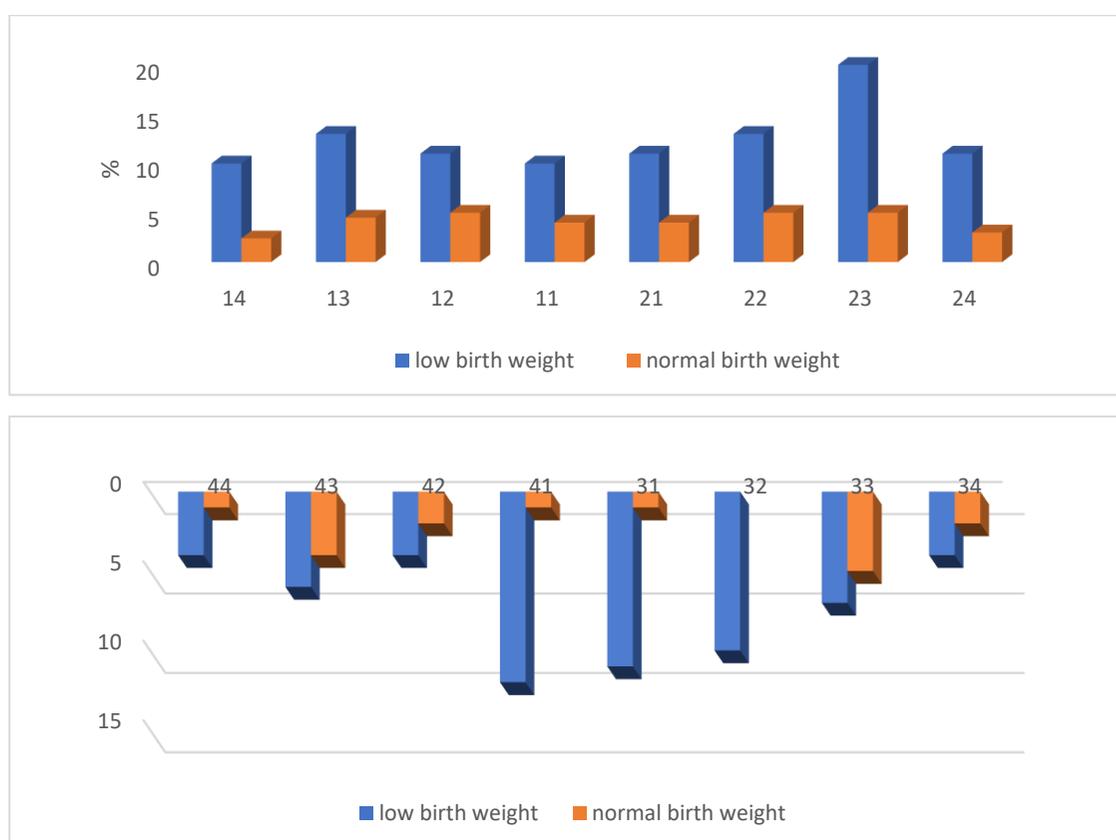
Table 1

Prevalence of hypoplasia according to sociodemographic factors

		Enamel Hypoplasia %(n)
Presence of visible plaque	No	24.4(20)
	Yes	75.6(62)
Early disease episode	Few	30.5(25)
	Many	69.5(57)
Birth weight	Less than 2500g	36.6(30)
	More than 2500g	63.4(52)

Table 2

Frequency distribution of enamel hypoplasia according to tooth type in low and normal birth weight children



Children affected by enamel hypoplasia (EH) presents three or more teeth being injured. Table 3 shows presence of EH depending on the type of tooth. Hypoplasia was most often detected in the maxillary canines (10-11%) and less often in mandibular central incisors (2.2-2.4%)

Table 3

Distribution of hypoplasia according to tooth type

<i>Tooth</i>	<i>14</i>	<i>13</i>	<i>12</i>	<i>11</i>	<i>21</i>	<i>22</i>	<i>23</i>	<i>24</i>
<i>Hypoplasia, %</i>	<i>4.4</i>	<i>10.6</i>	<i>5.0</i>	<i>6.6</i>	<i>5.8</i>	<i>5.4</i>	<i>10.2</i>	<i>5.4</i>
	<i>6.0</i>	<i>13.2</i>	<i>3.8</i>	<i>2.2</i>	<i>2.4</i>	<i>3.6</i>	<i>9.8</i>	<i>5.6</i>
	<i>44</i>	<i>43</i>	<i>42</i>	<i>41</i>	<i>31</i>	<i>32</i>	<i>33</i>	<i>34</i>

Conclusion. This study can be concluded that there are a lot of risks that determine enamel hypoplasia appearance. Low birth children should be monitored, because they present a higher risk to develop a hypoplastic defect as well as habitation of dental plaque, local trauma and frequency of early illness. To summarize, socio-demographic and environmental factors have a huge impact on development of dental enamel hypoplasia

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