ISSUES ON THE PREMATURE LOSS OF THE PRIMARY DENTITION OF PRe-SCHOOL CHILDREN IN THE IASI URBAN AREA

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Abstract.

The premature loss of the primary dentition impedes upon the development of the permanent teeth and on the intermaxillary relations, resulting even into the onset of later malocclusion.

The aim of this study was to assess the issues related to the integrity of the dental arches and the premature loss of the primary dentition, as well as the appropriateness of preventive therapy.

Material and method. The clinical research included a group of 274 children coming from three kindergartens in Iași City; the children belonged to 4 age groups: 4-5 years, 5-6 years, 6-7 years and 7-8 years, respectively.

Results and discussions. Our research revealed that in the 4-5 years age group, the integrity of the dental arches amounted to 75%, while in the 6-7 years age group, the primary dentition premature loss percentage was higher, which affected the integrity of the dental arches. We also noticed a higher percentage of premature loss of teeth on the lateral lower arch, especially the 1st or 2nd primary molar, than on the front arch. We revealed the appropriateness of preventive therapy, by the application of various types of space retainers – about 70% for the 6-7/7-8 years age groups.

Conclusions. The study assessed the status of the primary dentition arches, the premature loss of the primary dentition, and revealed the variability of the lost dental pattern, depending on the child’s age, and the importance of preventive therapy.

Key words: primary dentition, pre school children, urban area

INTRODUCTION

The premature loss of the primary dentition impedes upon the development of the permanent teeth, resulting into the onset of malocclusion affecting the subsequent growth and development process.

The purpose of this research was to reveal certain issues related to the premature loss of the primary dentition, and also the appropriateness of preventive therapy. We encountered a high variability in the type of premature loss of the primary dentition, depending on various factors: age when the tooth was lost, lost dental pattern, development stage of the permanent tooth, current status of the oral cavity at that time, etc. The more distal the prematurely lost tooth (first and second primary molars), the higher the risk of space reduction further to the primary tooth loss. The premature teeth loss is more significant on the upper jaw than on the mandible, given an increased tendency of mesialization (1). It is important whether the loss occurred before or after the eruption of the first permanent molars, since these occlusal relations restrict movements. A premature primary teeth loss at the age of 3-5, most of the times further to traumatic events, does not always determine permanent dentition crowding (2).

MATERIAL AND METHOD

Our research was aimed at revealing certain aspects related to primary teeth loss, by assessing a group of 274 children coming from three kindergartens of Iași City, who were divided into 4 age groups: 4-5 years – 56 children, the second group – 5-6 years, 78 children, third group – 6-7 years, 77 children, and the 7-8 years group – 63 children. (Fig.1) Also, the gender distribution was: 151 girls and 123 boys. (Fig. 2)

The goal of the clinical evaluation was the determination of the number of children with intact dental arches and their percentage in the studied groups, depending on the age group, determination of the number of children with prematurity primary dentition losses, occurrence of crown injuries (which may lead to later premature teeth loss), lost teeth injury pattern...
and part of dental arch where the loss occurred, depending on the age group to which belonged the children under survey.

Figure 1. Age group distribution for the children included in the survey

Figure 2. Gender distribution for the children included in the survey

REFERENCES AND DISCUSSIONS

According to the results, 112 children enjoyed intact dental arches, while 162 had suffered premature primary dentition losses (fig. 3).

Figure 3. Distribution on groups with intact dental arches and with premature primary dentition losses

According to the graphic representation of the values related to dental arch integrity, the number of prematurely lost primary teeth and the occurrence of dental caries, we noticed a variability depending on the age group - therefore, the youngest children suffered the lowest number of prematurely lost teeth, while the 7-8 years age group suffered the highest such losses, accompanied by a higher occurrence of dental caries in the primary teeth left on the arch; the remaining roots were considered premature primary teeth losses (fig. 4, 5 and 6).

Figure 4. Distribution in percents of the assessed parameters - the premature primary teeth loss is less significant than the occurrence of dental caries, and intact arches - 4-5 years age group

Figure 5. Distribution in % of the assessed parameters - significant increase in the premature primary dentition loss, and low percentage if intact dental arches - 6 - 7 years age group

Figure 6. Distribution in % of the assessed parameters, with a significant premature primary dentition loss increase, a high premature loss percent and high dental caries occurrence - 7-8 years age group
The following issue we assessed was the part of the arch where the premature primary dentition loss occurred: in the front or on the sides, for the study groups defined above. The graphical representation of the results revealed: in the 4-5 years age group, we encountered only 2 cases of premature primary dentition loss on the front arch (series 1), while the 6-7 years age group had the highest such occurrence; as concerns series 2 - premature teeth loss on the sides of the dental arch, we noticed a proportional increase, depending on the age group, the highest values occurring in the 6-7 and 7-8 years age groups (fig. 7).

![Figure 7. Distribution on age groups and the part of dental arch where the premature primary dentition loss occurred: series 1 - in the front; series 2 - on the sides](image)

Table 1. Representation of the prematurely lost primary teeth pattern, on each age group

<table>
<thead>
<tr>
<th>Dental pattern</th>
<th>1 Primary incisors</th>
<th>2 Primary canines</th>
<th>3 First molars</th>
<th>4 Second molars</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age group</td>
<td>12</td>
<td>19</td>
<td>50</td>
<td>34</td>
</tr>
<tr>
<td>4-5 years</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>5-6 years</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>9</td>
</tr>
<tr>
<td>6-7 years</td>
<td>5</td>
<td>8</td>
<td>21</td>
<td>12</td>
</tr>
<tr>
<td>7-8 years</td>
<td>3</td>
<td>6</td>
<td>27</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td>12</td>
<td>19</td>
<td>50</td>
<td>34</td>
</tr>
</tbody>
</table>

The study was also designed to assess the treatment required for the premature loss of primary dentition, the appropriateness of preventive therapy consisting of various types of fixed or removable space retainers. We noticed an increase for the 6-7 and 7-8 years age groups, which had similar values (fig. 9).

![Figure 9. Percent distribution of the preventive therapy needed for each age group: 1 - 4-5 years, 2 - 5-6 years, 3 - 6-7 years and 4 - 7-8 years](image)

Studies performed by Mexican researchers revealed about 4.1% and 6% of premature primary dentition losses in 5 and 6 years old children, respectively (3, 4). In Saudi Arabia, researchers noticed a 6.2% occurrence of premature primary dentition losses in children.
aged between 4 and 7 years, the first primary molar being the most affected.

Alsheneifi and Hughes concluded in their research that primary molars are the most frequently removed teeth, amounting to about 30% of the total teeth lost through extraction, followed by the center incisors; please note that there were no significant differences concerning the premature primary dentition loss between girls and boys. Farsi and Alamundi, in a survey on the relation between premature primary dentition loss and the disorders occurred in the temporal-mandibular joint, carried out on children aged between 4 and 7, noticed no significant changes, which means that premature primary dentition loss does not seem to be an etiological factor triggering temporal-mandibular disorders.

CONCLUSIONS

Premature primary dentition loss impedes upon the growth and development of dental arches and permanent teeth, and also in establishing the right occlusal relations. Our research studied the variability of the lost dental pattern: frequently occurring on the sides of the dental arch, and involving especially the primary first molar, but also depending on the age group: 6 - 7 years. The study also revealed the preventive therapy needs - consisting of space retainers - as about 70% of the children aged between 6-7 years/7-8 years need this kind of treatment.

References.