

Katedra i Zakład Stomatologii Wieku Rozwojowego Akademii Medycznej w Lublinie  
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*Traumatic injuries to permanent teeth in children treated in  
Department of Paedodontics, Medical Academy in Lublin*

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Urazy mechaniczne zębów stałych u dzieci leczonych w Katedrze i Zakładzie  
Stomatologii Wieku Rozwojowego AM w Lublinie

The traumatic dental injuries in children represent the second, after dental caries, most common reason of attending the dental surgeries. The paper presents the statistical analysis of the patients attending the Department of Paedodontics, Medical Academy in Lublin due to the traumatic dental injuries.

MATERIAL AND METHOD

The research material included the patients attending the Department of Paedodontics, Medical Academy in Lublin due to the traumatic dental injuries in the years 1996-97. Within this period, 251 children with the mechanical injuries of 294 permanent teeth were treated. The ages ranged from 6 to 14 years. The statistical analysis concerned: sex, age, groups of teeth injuries, types of injuries according to Ellis classification, residence of children, circumstances of the injuries, places of first aid, time elapsing from the injury to first aid.

RESULTS

In 251 children 294 teeth were mechanically injured. The group consisted of 164 boys (65.3%) and 87 girls (34.7%). The boys sustained the injuries twice more frequently than the girls. The most numerous group, almost a half, was composed of the 8-9 year-old children; 71 8-year-old (28.3%) and 42 9-year-old

ones (16.7%). In the age range of 10-14 years the injuries in boys were observed three times more frequently than in girls (Table 1). The injuries to the anterior maxillary teeth were most common – 90.8%, including the central incisors – 82.3% and lateral incisors – 8.5%. The mechanical injuries to the mandibular teeth constituted 9.2% (Table 2).

According to Ellis classification class II was the most frequent fracture – 210 teeth (71.4%) followed by class III – 15.3% (Table 3).

Among the patients treated 212 children (84.5%) came from towns and 39 from rural regions (Fig. 1). The traumatic injuries were most frequently observed in schools – 96 children (39.2%) and playgrounds (bicycles, roller-skates, skates) – 78 children (31.1%) (Fig. 2).

The material examined showed that 84 children (33.5%) attended the regional outpatient clinics, 84 (32.7%) the school dental surgeries where 50% of patients received first aid and were referred to the Department of Paedodontics, Medical Academy in Lublin (Fig. 3). The majority attended the department more than 7 days after the injury – 95 children (37.8%); on the injury day – 63 (21.5%); and within 7 days following the injury – 93 (37.1) (Fig. 4.).



Fig. 1. Percentage of injuries versus residence

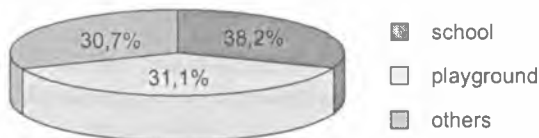


Fig. 2. Percentage of injuries versus injury places

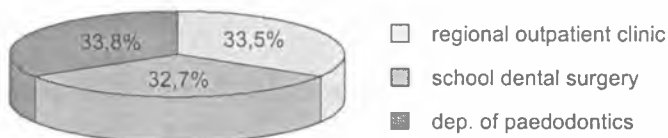


Fig. 3. Places of first aid attendance

Table 1. Children ages in years with regard to sex

| Age<br>Sex | 6 |     | 7  |      | 8  |      | 9  |      | 10 |      | 11 |     | 12 |     | 13 |     | 14 |     | Together |      |
|------------|---|-----|----|------|----|------|----|------|----|------|----|-----|----|-----|----|-----|----|-----|----------|------|
|            | n | %   | n  | %    | n  | %    | n  | %    | n  | %    | n  | %   | n  | %   | n  | %   | n  | %   | n        | %    |
| Boys       | 4 | 1.6 | 25 | 9.9  | 42 | 16.7 | 24 | 9.6  | 20 | 7.9  | 16 | 6.4 | 12 | 4.8 | 10 | 4.0 | 11 | 4.4 | 164      | 65.3 |
| Girls      | 2 | 0.8 | 11 | 4.4  | 29 | 11.6 | 18 | 7.1  | 7  | 2.8  | 6  | 2.4 | 6  | 2.4 | 5  | 2.0 | 3  | 1.2 | 87       | 34.7 |
| Together   | 6 | 2.4 | 36 | 14.3 | 71 | 28.3 | 42 | 16.7 | 27 | 10.7 | 22 | 8.8 | 18 | 7.2 | 15 | 6.0 | 14 | 5.6 | 251      | 100  |

Table 2. Prevalence of mechanical injuries to permanent teeth in maxilla, mandible and individual anterior teeth groups

|          |               | Number dental |      | Together |      |
|----------|---------------|---------------|------|----------|------|
|          |               | n             | %    | n        | %    |
|          |               |               |      |          |      |
| Maxilla  | incis. centr. | 242           | 82.3 | 267      | 90.8 |
|          | incis. later. | 25            | 8.5  |          |      |
| Mandible | incis. centr. | 20            | 6.8  | 27       | 9.2  |
|          | incis. later. | 7             | 2.4  |          |      |

Table 3. Prevalence of mechanical injuries to permanent teeth according to Ellis classification

| Class<br>Sex | I  |     | II  |      | III |      | IV |     | V |     | VI |     | VII |     | VIII |     | Together |      |
|--------------|----|-----|-----|------|-----|------|----|-----|---|-----|----|-----|-----|-----|------|-----|----------|------|
|              | n  | %   | n   | %    | n   | %    | n  | %   | n | %   | n  | %   | n   | %   | n    | %   | n        | %    |
| Boys         | 7  | 2.4 | 138 | 46.9 | 28  | 9.5  | 5  | 1.7 | 5 | 1.7 | 5  | 1.7 | 3   | 1.0 | 2    | 0.7 | 193      | 65.6 |
| Girls        | 4  | 1.3 | 72  | 24.5 | 17  | 5.8  | 4  | 1.4 | 2 | 0.7 | 1  | 0.3 | 1   | 0.3 | 0    | 0   | 101      | 34.4 |
| Together     | 11 | 3.7 | 210 | 71.4 | 45  | 15.3 | 9  | 3.1 | 7 | 2.4 | 6  | 2.0 | 4   | 1.3 | 2    | 0.7 | 294      | 100  |

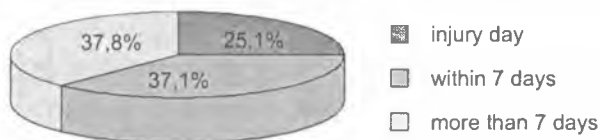


Fig. 4. Attendance time after the injury

## DISCUSSION

The material examined in the Department of Paedodontics, Medical Academy in Lublin showed permanent teeth were observed among children aged 8-9 years, which corresponds with the reports of other authors (1,6,7,8,12,14). The traumatic injuries were found more frequently in boys than in girls, which also supports the previous reports (1,2,5,6,7,8,10,12,14,16,17). The French authors found the statistical significant differences depending on sex in the age range of 12-13 and 6-15 years (5). According to Swedish researchers, 63% of the girls aged 7-9 years sustained the injuries while in the age range of 8-12 years the boys were in the majority (75%). Class II according to Ellis classification was the most frequent fracture, which was confirmed by others (1,6,15). However, some authors reported class I to be the most common fracture (5,12). Glendor observed that hard tissue injuries were more frequent in boys while dental dislocations in girls (7). Among the dental groups the highest prevalence of mechanical injuries concerned the central maxillary incisors was also confirmed by others (1,2,4,6,8,10,11,14,15,16,17).

## CONCLUSIONS

1. The most frequent traumatic injuries concern the 8-9 year-old children.
2. The traumatic injuries are twice more often observed in boys than in girls.
3. Class II according to Ellis classification is the most frequent fracture concerning the injuries of the enamel and dentin regions.
4. The injuries of maxilla were 10 times more frequent than the injuries of mandible.
5. The maxillary central incisors are found to be most frequently injured.

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## STRESZCZENIE

Przeprowadzono analizę statystyczną pacjentów zgłaszających się do Katedry i Zakładu Stomatologii Wieku Rozwojowego AM w Lublinie z powodu urazów mechanicznych zębów stałych. Stwierdzono, że najczęściej urazom ulegają dzieci w wieku 8-9 lat. W przedziale wiekowym 7-14 lat częściej doznają urazu chłopcy (65,3%) niż dziewczynki (34,7%). Najwyższy odsetek urazów stanowi II klasa wg Ellisa, czyli złamania dotyczące szkliwa i zębiny (71,4%) analizowanych zębów. Najczęściej urazom ulegają siekacze przyśrodkowe szczęki (82,3%).