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*Analysis of the structure of child accidents and injuries
in Świętokrzyskie voivodship*

The progress and development of medical science as well as the improvement in living conditions of people have resulted in a considerable improvement of the health state of the society. The diseases caused by undernutrition and shortage of vitamins have been eliminated. Also the number of complications following the occurrence of inborn defects, metabolic and contagious diseases has declined (1). The accelerating pace of life, development of motor transport as well as the increased use of technology in daily life all influence the fact that an increasing number of children suffer from injuries. Injuries are ranked first on the list of the major causes of deaths of children and youth aged from 1 to 15. The circumstances that trigger the development of injuries include: lack or inappropriate care of parents or foster-parents, traffic exposure of schools. Another significant factor of injury occurrence is also the personality, psyche and dexterity of the child (7).

The injuries occur in children at every age, having distinct features at different periods of life, though. Infants up to the age of half a year are relatively least exposed to the injuries, not having the ability of moving unassisted.

With age and with the development of child activity and desire to find out more about the surrounding world, to imitate adult behaviours as well as the range of exposures to various injuries constantly the number of injuries increases (2). A considerable number of accidents result from making hazardous decisions made by children (5). The importance of the phenomenon can be proved by the fact that the World Health Organization (WHO) has launched research on the increasing incidence of injuries among children. In order to prevent injuries in an efficient way children should be guaranteed a safe environment for both playing and learning; to do this properly the world should be perceived through the eyes of the child, but with the experience and knowledge of the adults (4).

Accidents and injuries are the events having causative connection with the behaviour. They occur in relation to subjective features, the educational process and the patterns of behaviour that function in the society (6). It has been proved that there is a connection between the incidence of injuries and the lifestyle, family situation, school and certain mental and physical health indicators. The high level of risk of injuries occurs in schoolchildren using alcohol and other psychoactive substances, those having negative attitude to school as well as lacking the support from parents. The increased risk of injuries can also be found in aggressive youngsters, with autodestructive tendencies as well as in shy people left out of peer groups (4). Home injuries account for the largest number of injuries among children. However, with the age of the child, the rate of accidents outside home

increases, including road, school and farm accidents. Boys constitute the group of the increased risk of injuries (3).

On the basis of the analysis of the structure of accidents, three groups of causes can be distinguished: human, technological, random. They are defined as improper behaviours of victims that result from haste, ignoring danger or inability to predict the danger as well as from a poor condition of machines and appliances and their inappropriate operation.

The aim of the study is to present the structure and circumstances of the occurrence of schoolchild accidents and injuries.

METHODS

The research method applied was an analysis of medical history of child patients of the Surgery, Orthopedics and Traumatic Departments of the District Child Hospital in Kielce. The factors taken into consideration in the analysis include: age, sex, residence, circumstances of injuries or accidents, as well as the season of the year when they occurred. The population under analysis comprised children aged from 7 to 15. The analysis of hospital records was made in two periods: from January 1, 1997 to December 31, 1997 and from January 1, 2000 to December 31, 2000.

RESULTS

As follows from the analysis of medical history of child victims of accidents, 535 children had accidents in 1997, while 674 – in 2000. In 2000 the number of children admitted to hospital due to injuries considerably increased by 25.9% as compared with the year 1997. Boys accounted for 73% of the total number of accidents in 1997 and for 72% in 2000. The largest group comprised children aged from 10 to 12, respectively 40% in 1997 and 35% in 2000. This group was followed by the children at the age range from 7 to 9: 1997 – 36% and 2000 – 33%.

In 1997, 46% of the children admitted to hospital due to injuries and accidents came from the city areas, while 54% were from the country, whereas in 2000, the accident rate among city residents was 47%, while country residents accounted for 53% of the total.

Season structure of accidents. The largest number of accidents occurred during summer months: in 1997 – 14.6% in June, 11.4% in July and 11.8% in August, similarly in the year 2000: 9.2% in May, 11.6% in June and 11.3% in July. The smallest percentage of injuries was observed in winter: 4.1% in December of 1997, while in the same month of 2000 the percentage was 6.2%. Summer time is also a period of the highest rate of injuries: 37.8% in 1997 and 32.1% in 2000.

Circumstances of accidents. The majority of accidents occur at home: 53.6% in 1997 and 57.9% in 2000. They are followed by road accidents that accounted for 25.2% in 1997 and for 26.7% in 2000. What is worth mentioning is the fact that a considerable number of accidents occurred in school: 11.6% both in 1997 and 2000.

Causes of injuries. The major causes of home injuries sustained by children included: falls on a flat surface – 13.2% in 1997 and 12.6% in 2000, followed by scalds: respectively 11.5% in 1997 and 10% in 2000. Bicycle falls constitute a considerable percentage, respectively 9.4% in 1997 and 12.3% in 2000, while beatings account for 8.7% in 1997 and 10.5% in 2000. The circumstances of injuries sustained in school are also worth noticing. They include: falls on a flat, hard surface: 35.5% in 1997 and 38.4% in 2000, accidents during physical education classes – 29.1% in 1997 and

24.3% in 2000, during playing games – 19.3% in 1997 and 14% in 2000 as well as beating: 16.1% in 1997 and 23.1% in 2000.

The structure of injuries sustained in the school area was as follows: head injuries – 33.9% in 1997 and 41% in 2000; fractures, dislocations and sprains of upper limbs – 22.6% in 1997 and 19.2% in 2000; fractures, dislocations and sprains of lower limbs – 17.7% in 1997, 15.4% in 2000; chest or stomach bruising – 11.3% in 1997 and 12.9% in 2000; spine injuries – 14.5% in 1997 and 11% in 2000.

Road accidents account for 25.5% of the injuries sustained by the subjects in 1998, while in 2000 the percentage reached 26.7%, with country children accounting for the higher accident rate (1997 – 52.6%, 2000 – 51.2%) than children from urban areas (1997 – 47.4%, 2000 – 48.8%). Children involved in road accidents are most frequently pedestrians (43.7% in 1997 and 43.9% in 2000), cyclists or motorbikers (30.3% in 1997 and 30.1% in 2000) as well as minor passengers (26% both in 1997 and 2000). The most frequent injuries sustained are general bruising and skin excoriation (31% in 1997 and 32% in 2000), while the incidence of head bruising and brain concussion (21% both in 1997 and 2000) is identical to the incidence of limb fractures and face injuries (21% both in 1997 and 2000). Spinal fractures and bruising accounted for 16% of the total number of injuries in 1997 and for 15% in 2000. Multiorgan injuries were recorded in a considerable group of the subjects reaching 11% in 1997 as well as in 2000.

Farm accidents are most frequently caused by farm equipment and tools: 51.1% in 1997 and 40% in 2000. Farm machines were the major cause of 31.4% of injuries in 1997 and 36% in 2000. A smaller percentage of child accidents were caused by farm animals, respectively 14.3% in 1997 and 16% in 2000. A vast majority of farm injuries in 1997 resulted in traumatic amputations or crushed fingers (45.7%). Head and limb injuries were diagnosed in 25.7% of the subjects, whereas the largest group of injuries in 2000 were head and limb injuries as well as hematomas that accounted for 40%.

CONCLUSIONS

1. Boys are more frequently affected by accidents and injuries than girls.
2. The number of accidents in rural and urban areas was similar.
3. The largest incidence of child accidents is reported during summer months.
4. The most frequent injuries sustained by children include cerebral cranial injuries and limb fractures.
5. In order to reduce the incidence of child accidents and injuries it is necessary to combine actions taken by parents, teachers, police officers and other professions.

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SUMMARY

The accelerating pace of life, development of motor transport as well as the increased use of technology in daily life all influence the fact that an increasing number of children suffer from injuries and accidents. Injuries and accidents are ranked first on the list of the major causes of deaths of children and youth aged from 1 to 15. The aim of the paper was to present the structure as well as the circumstances of accidents among schoolchildren. The research method applied was an analysis of medical history of child patients of the Surgery, Orthopedics and Traumatic Departments of the District Child Hospital in Kielce. Boys are more frequently affected by accidents and injuries, the number of accidents in rural and urban areas was similar. The largest incidence of child accidents was reported during summer months.

Analiza struktury wypadków i urazów wśród dzieci na terenie województwa świętokrzyskiego

Wzrastające tempo życia, rozwój motoryzacji i znaczny udział techniki w życiu codziennym sprawiają, że coraz więcej dzieci ulega urazom i wypadkom. Jako przyczyna zgonów urazy i wypadki zajmują pierwsze miejsce w przedziale wiekowym 1–15 lat. Celem pracy było przedstawienie struktury i okoliczności występowania wypadków wśród dzieci w wieku szkolnym. Metodą badawczą była analiza dokumentacji medycznej – Kart Historii Chorób dzieci hospitalizowanych w oddziałach Chirurgiczno i Urazowo-Ortopedycznym Wojewódzkiego Szpitala Dziecięcego w Kielcach. Wypadki i urazy dotyczą częściej chłopców, wypadkowość w mieście i na wsi jest zbliżona. Najczęściej urazom i wypadkom ulegają dzieci w miesiącach letnich.