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ANALYSIS OF THE STRUCTURE OF CASES OF EMERGENCY HOSPITALIZATION IN CHILDREN WITH TRAUMATIC INJURIES

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Abstract. Identifying the relationship between age, the scene of the accident and the nature of the damage makes it possible to develop measures to reduce the frequency of injuries. The cases of emergency hospitalization of children with injuries to the St. Petersburg State Medical University clinic in 2021 were analyzed. Fractures and bruises were a common cause of hospitalization of children aged 1–17 years. Boys aged 1–3 years and 13–17 years were more often hospitalized with injuries. In the group of 13–17 years, fractures of the wrist and hand bones were more often observed. In children 1–3 years old, bruises received in everyday life were more common. At the age 4–7 years, fractures of the forearm bones prevailed, most often received in everyday life. In the group of 8 years and older, there was a high frequency of fractures of the bones of the hand and forearm, received on the street or during sports.

Key words*: children; traumatism; prevention.*

АНАЛИЗ СТРУКТУРЫ СЛУЧАЕВ ЭКСТРЕННОЙ ГОСПИТАЛИЗАЦИИ У ДЕТЕЙ С ТРАВМАТИЧЕСКИМИ ПОВРЕЖДЕНИЯМИ

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Резюме. Выявление взаимосвязи между возрастом, местом происшествия и характером повреждения дает возможность разработки мероприятий, позволяющих снизить частоту травматизма. Проанализированы случаи экстренной госпитализации детей с травмами в клинику СПбГПМУ в 2021 году. Частой причиной госпитализации детей 1–17 лет явились переломы и ушибы. С травмами чаще госпитализировались мальчики в возрасте 1–3 и 13–17 лет. В группе 13–17 лет чаще наблюдались переломы костей запястья и кисти. У детей 1–3 лет чаще встречались ушибы, полученные в быту. В возрасте 4–7 лет преобладали переломы костей предплечья, чаще полученные в быту. В группе от 8 лет и старше отмечалась высокая частота переломов костей кисти и предплечья, полученных на улице или при занятиях спортом.

Ключевые слова: *дети; травматизм; профилактика.*

INTRODUCTION

Child injuries are a topical medical and social problem in paediatrics. The high rate of injuries has remained the same over the past 10 years [1]. The prevention of child injuries and the creation of a safe environment for child health are priorities for health institutions worldwide [2].

The incidence of injuries in children in Saint Petersburg is significantly higher among boys in the age range of 14–17 [3]. The trend of high fre-

quency of injuries among adolescent boys is also observed in other regions of Russia (Khabarovsk, Tyumen, Orenburg) [4–6].

The high incidence of injuries in childhood is considered by many authors to be a result of a certain "traumatic behavior" which may be due to a certain type of upbringing [7, 8]. Also important are the age factor (psychomotor development) and the presence of behavioral disorders (high incidence of injuries in children with attention deficit hyperactivity syndrome (ADHD) and attention deficit disorder) [9].

Injury during physical education classes and sports classes is more frequent among boys, with a peak in the age range of 7–10 years with decreases in older age [5].

Among the total number of injuries in children in Saint Petersburg in the period 2015–2017, the most frequent were superficial injuries (40%), dislocation and sprained joints (15%), and wounds (11%). Of all injuries recorded, upper limb fractures were 13.3%, lower limb fractures were 5.4%, vertebral and torso fractures were 1.4%, and thermal and chemical burns were 2.1% [10].

The incidence of injuries in children in Saint Petersburg in 2018 was significantly higher than the average for Russia (106.4‰ in children and 176.7‰ in adolescents). 93.3% of patients received first aid and outpatient treatment in the traumatological cabinet and traumatological units of children's polyclinics, in traumatological units of adult`s polyclinics. About 8% were sent to the hospital [11].

THE PURPOSE OF THE STUDY

Study of the structure of traumatic injuries in children admitted to the hospital after trauma, bypassing the outpatient care unit. On the basis of data analysis, develop basic guidelines for the prevention of child injuries.

MATERIALS AND METHODS

1,072 medical records of children aged 1 to 17 were analyzed. All children were hospitalized with acute injuries without going through the outpatient phase of trauma care. The study included 687 boys and 385 girls. All children were divided into age groups: 1–3 years (n=137), 4–7 years (n=198), 8–12 years (n=336), and 13–17 years (n=401).

The obtained results are statistically processed using Microsoft Excel and reliability criterion.

RESULTS AND DISCUSSION

Among the hospitalized children in all groups, they were predominantly boys: children under the age of 3 and 13–17 (Fig. 1).

All injuries were subdivided into fractures, dislocations, open wounds, bruises, sprains, and ligaments. Bruises and fractures were discovered among all the injuries. Bruises dominated in 37.2% of cases in the group of children aged 1–3; in other age groups, fractures predominated (Fig. 2).

The localization of injuries in the structure was dominated by the upper extremities (n=779), lower extremities (n=231), spine (n=20), superficial head injuries (n=17), abdominal injuries (n=11), back injuries (soft tissue) (n=9), thorax (n = 3), and external genitals (n=2).

In the case of injuries in everyday life (n=473), the main reasons were: pinning the fingers with doors (more often among children under 3 years) in 33.4% of cases; a fall on the slippery floor in 28%; accidental blows by distal limbs (with a fist on the wall, on the table, etc., more often among

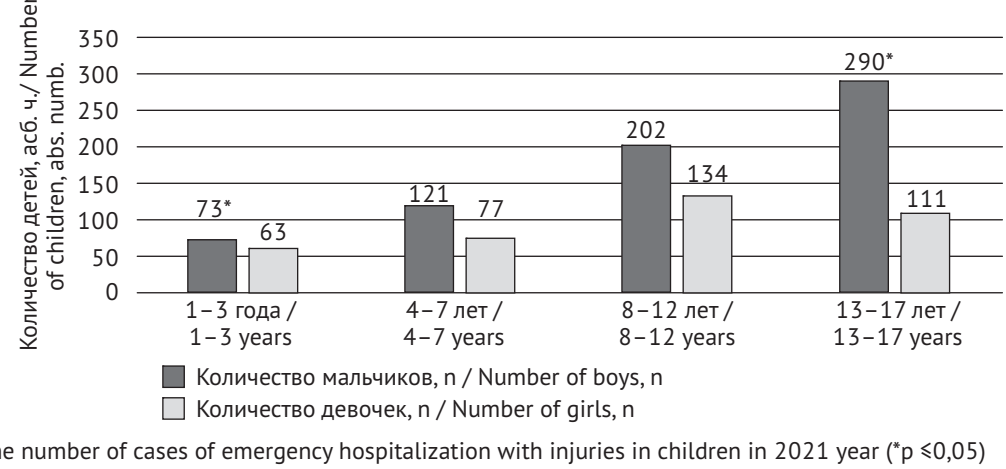

Fig. 1. The number of cases of emergency hospitalization with injuries in children in 2021 year (*p ⩽0,05)

Рис. 1. Количество случаев экстренной госпитализации с травмами у детей за 2021 год (*p ⩽0,05)

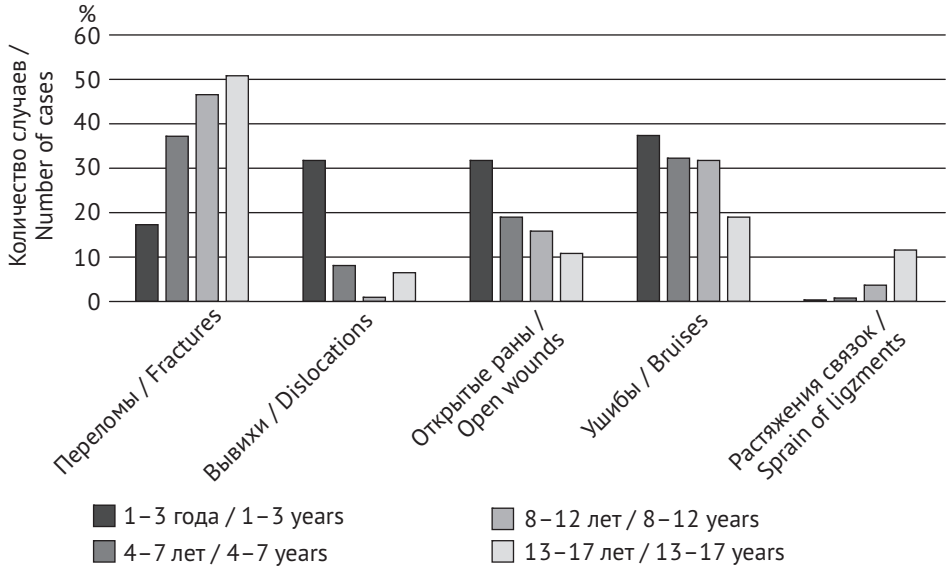

Fig. 2. The structure of traumatic injuries in children hospitalized on an emergency in 2021

Рис. 2. Структура травматических повреждений у детей, госпитализированных в экстренном порядке в 2021 году

Table 1. Characteristics of localization of traumatic injuries in boys and girls

Таблица 1. Характеристика локализаций травматических повреждений у мальчиков и девочек

Травма / Injury	Количество мальчиков, n=687/ Number of boys, n=687		Количество девочек, n=385 / Number of girls, n=385		p
Вывихи / Dislocations	48	7,0%	44	11,4%	≤0,05
Открытые раны / Open wounds	97	14,1%	57	14,8%	>0,05
Переломы / Fractures	306	44,5%	153	39,7%	>0,05
Ушибы / Bruises	196	28,5%	104	27,0%	>0,05
Растяжения, разрывы связок / Sprains, ligament tears	40	5,9%	27	7,0%	>0,05

children from 4 years and older) in 20.9%; and injury to sharp household items (knives, sharp corners of furniture, etc.) in 17.7% of cases.

In the case of injuries on the street and in public places (n=297), the main reasons were: outdoor sports equipment (gym, swings, horizontal bar, trampoline) in 67.6% of cases; falling from a bike, scooter, etc. in 20.2% of cases; hitting the ball in 7.4% of cases; and sharp force wounds in 4.7% of cases.

Injuries sustained in sports sections (n=251) as a result of unsuccessful falls were observed in 67.7% of cases, in combat techniques (gripping, blows, etc.) — in 18.3% of cases, and in other exercises — in 14.0% of cases.

In kindergarten (n=12) injuries are obtained as a result of pinning the fingers with doors (n=10), unsuccessful falls on the floor (n=2). In school (n=39) in physical education classes (n=26) — as a result of falls when running, folding of limbs, kick the ball, as well as other lessons. School breaks, as a result of conflicts with peers or pranks (n=13).

Children aged 1–3 and 4–7 are injured most often in everyday life. Children aged 8–12 are mainly injured at home, on the street, and in public places. Children in the older age group were more likely to be injured on the street, in public places, and in sports.

Differences were found in the types of traumatic injuries in boys and girls.

The most frequent injuries leading to emergency hospitalization were fractures at 42.8% (n=459), bruises at 28.0% (n=300), open wounds at 14.3% (n=154), dislocation at 8.6% (n= 92), and sprains and ligament ruptures at 6.3% (n=67).

When analyzing the number of all fractures in the age groups, two groups showed a predominance: children 8–12 (46.7%) and 12–17 (50.9%), with no reliable difference between the groups (p >0.05). There was a clear difference in the

number of fractures between groups of children aged 1–3 (17.5%), 4–7 (46.5%), and 12–17 (50.9%) (p≤0.05).

Among all fractures (n=459) the most common localizations were the bones of the wrist and fingers — 48.6% (n=223), the bones of the forearm — 19.8% (n=91) and the shoulder — 8.9% (n=41) cases.

Fractures of the bones of the wrist and hand were most common and with a high degree of certainty (p ≤0.05) in the 13–17 age group — 58.3%, and fractures of the bones of the forearm in the 8–12 age group — 26.1%.

Less commonly found were fractures of the tibia (n=36), clavicles (n=29), feet (n=24), fractures of the vertebrae (n=11) and femurs (n=4).

When comparing the number of cases of fractures in boys and girls, the most frequent localization was fractures of the bones of the wrist and fingers: 52.3% of girls and 46.7% of boys (p >0.05). Localization of fractures of the forearm was reliably more prevalent in the group of boys (22.5%) than in girls (14.4% of cases) (p ≤0.05).

Bruises accounted for 28.0% (n=300) of all injuries hospitalized on an emergency basis. The most frequent localization of bruises was injuries to the wrists and fingers — in 54.7% (n=164), forearms — in 10.3% (n=31), feet — in 9.0% (n=27) cases.

It was found that the number of bruises predominated in children from 1 to 3 years of age — 37.2% of all injuries in this age group, which was reliably higher than the incidence in children from 12 to 17 years of age — in 19.2% of cases (p ≤0.05). Children aged 4–7, 32.8%, had bruises, and children aged 8–12, 31.8 % (p >0.05).

Among the bruises, contusions that required emergency hospitalization of the upper limbs prevailed mainly on the wrists and fingers.

The analysis of the number of cases of localized bruises in the wrist and hand showed a predominance in the age group of children 1–3 with 72.5% of cases, and in the group 4–7 years with the frequency of wrist and hand 63,0%, which is different from the 8–12 age group with a frequency of 43.9% and 12–17 years with a frequency of 50.6% (p ≤0.05).

In the age group 8–12 years in 35.7% of cases (n=107) localized bruises, namely: contusion of the femur (n=3), external genitalia (n=2), and soft tissue of the head (n=1). That was not observed in other age groups.

The most frequent localization of injuries in girls admitted for emergency treatment for bruises (n=104): wrist and hand of 57.7% (n=60) and forearm of 13.4% (n=14); for boys (n=196) wrist and hand of 53.0% (n=104) and forearm regions in 8.7% (n=17) cases (p >0.05).

Open wounds accounted for 14.3% (n=154) of all emergency hospitalizations. The most frequent localization was in the area of the wrist and fingers: 57.4% (n=90); in the area of the foot: 11.0% (n=17) and in the head: 10.4% (n=16) cases.

In the studied age groups, of all emergency hospitalizations for injuries, there was a predominance of open-wound children (4–7 years old) in 19.2% of cases, which was more reliable than in the 13–17 year-old group (p≤0.05). In the group of children 1–3 years old, the open wounds amounted to 12.4%; in the group 8–12 years old, 16.0% (p >0.05).

Between the open wounds in the wrist and hand, there was no reliable difference in the frequency of cases between the groups.

In the 8–12 age group there were localizations of open wounds namely knee (n=3), thorax (n=1), shoulder (n=1). That were wounds not observed in other age groups.

In girls admitted to the hospital on an emergency basis with open wounds, the most frequent localization wounds were wrist and hands: 47.4% (n=27); in boys, wounds of this localization were 64.9% (n=63) cases (p ≤0.05). Fewer injuries were found in girls in the tibia region — 15.8% n=9), and in boys in the foot area 12.3% (n=12).

Dislocations accounted for 8.6% (n=92) of all emergency hospitalization cases and had the most frequent localization in the area of the joints of the forearm — 67.4% (n=62), the patella: 14.1% (n=13) and the fingers: 8.7% (n=8).

Among all cases of dislocation, it was most common in the group of children 1–3 years of age — 32.1%. In the other age groups, the frequency was much lower: in the group of 4–7 years 8.6%, 8-12 years — 1.2%, and 12–17 years — 6.7% (p≤0.05).

Dislocations in the joints of the forearm (radial and elbow) were the reason for hospitalization in the 1–3 age group and accounted for 100% (n=44) of cases.

Among girls admitted to the hospital on an emergency basis due to dislocations, the most frequent localization dislocations were in the joints of the forearm (radius and ulna) — 81.8% (n=36) — and in boys (n=48) — in 54.2% (n=26) cases (p ≤0.05).

Sprains and ligament ruptures accounted for 6.3% (n=67) of all emergency hospitalizations. The localization of ligament sprains corresponded to: wrist and hand — 29% (n=20), ankle — 26.9% (n=18), knee — 23.9% (n=16), neck — 8.9% (n=6), foot joints — 4.5% (n=3), hip joint – 3.0% (n=2), front abdominal muscles — 1.4% (n=1) of cases.

When comparing the incidence of ligament strain in the groups, it was found most frequently in the 13–17 age group — 12.0%, while in the 1–3 age group — 0.7%, 3–7 years — 2.0%, 8–12 years — 4.2 %.

Among girls hospitalized for ligament sprains (n=27), the most frequent localization was in the area of the wrist and hand — 33.3% (n=9), in boys — 59.7% (n=40), the area of the knee — 40.0% (n=17).

CONCLUSIONS

The most common causes of emergency hospitalization among all injuries in children were fractures (42.8%) and bruises (28.0%).

Comparing the frequency and localization of injuries in boys and girls, it was found that boys were reliably more likely to have fractured forearm bones — 22.5%, while girls were 14.4%; open wrist and hand wounds in boys were 64,9%, in girls they were 47.4%. In the analysis of the frequency and localization of dislocations, the group of girls was reliably more frequent — 81.8%, and boys 54.2%. The significant prevalence of dislocation in girls may be related to hormonal status affecting connective-joint function.

In the age analysis structure, children mostly required hospitalization in the age groups 8–12 years — 31.3% and 13–17 years — in 37.4% of cases. Reliably more frequent fractures occurred in the 4–7 age group — in 37.4% of cases, mainly due to fractures of the bones of the forearm. In the 12–17 age group, the fracture rate was 50.9%, mainly due to the localization of the wrist and fingers.

Bruises were more likely to cause hospitalization in children in the 1–3 age group — in 37.2% of cases, with predominant localization in the wrist and hand — in 72.5% of cases.

Dislocations were more often the reason for hospitalization of children aged 1–3 — in 32.1% of cases, with predominant localization in the joints of the forearm (radius and elbow).

Open wounds were more likely to cause hospitalization of children in the 4–7 age group in 19.2% of cases, with the predominant localization of wounds in the wrist and hand — 50% of all injuries in this age group.

Interviews with parents by pediatricians explaining the nature of injuries at each age will reduce the incidence of child injuries.

Young children are more likely to be injured in the form of dislocated wrists and bruises, in everyday life in the use of doors. It is also possible to get injured by children when adults treat a child incorrectly (pull the hand, hang by the wrists during play, etc.). The use of special devices to prevent the complete closing of doors, as well as to explain to parents the rules of treatment and play with the child, given the weakness of the musculoskeletal system in children of this age, will reduce the frequency of injuries.

In the 4 to 7-year-old age range, when the child's own motor activity expands, fractures of the bones of the forearm and open wounds of the hand, forearm with the careless use of sharp objects and fractures predominated among the injuries. The preventive measure for this age period is the control of parents during active play of children and the use of traumatic objects (scissors, knives, etc.).

In the age groups of children aged 8 and over, mainly among boys, there is a high incidence of fractures of the bones of the hand and forearm. These injuries are most often inflicted on a child on the street or in sports. Possible causes of trauma in boys include behaviors with a high level of aggression. The prevention of injurious behavior includes conversations and control when using outdoor fitness equipment, such as bicycles and scooters. It is necessary not only to explain to the child the consequences of such behavior but also to educate the child in his own example of safe behavior in sports and active games. In addition, there is a need for more careful monitoring of sports activities and classes with the participation of not only coaches but also parents.

Knowledge of the structure and mechanism of child injuries will make it possible to develop comprehensive preventive programs. Use them program both at the outpatient level and in educational and sports institutions.

ADDITIONAL INFORMATION

Author contribution. Thereby, all authors made a substantial contribution to the conception of the study, acquisition, analysis, interpretation of data for the work, drafting and revising the article, final approval of the version to be pub-

lished and agree to be accountable for all aspects of the study.

Competing interests. The authors declare that they have no competing interests.

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Consent for publication. Written consent was obtained from the patients' legal representatives for publication of relevant medical information within the manuscript.

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Вклад авторов. Все авторы внесли существенный вклад в разработку концепции, проведение исследования и подготовку статьи, прочли и одобрили финальную версию перед публикацией.

Конфликт интересов. Авторы декларируют отсутствие явных и потенциальных конфликтов интересов, связанных с публикацией настоящей статьи.

Источник финансирования. Авторы заявляют об отсутствии внешнего финансирования при проведении исследования.

Информированное согласие на публикацию. Авторы получили письменное согласие законных представителей пациентов на публикацию медицинских данных.

REFERENCES

1. Grechuxin I.V., Kul`kov V.N., Fomichev V.V. Analiz zabolevaemosti detej vsledstvie travm, otravlenij i boleznej kostno-my`shechnoj sistemy` po danny`m oficial`noj statistiki. [Analysis of children's morbidity due to injuries, poisonings and diseases of the musculoskeletal system according to official statistics]. Medicina. 2019; 7(2): 24–39. (In Russian).
2. Sethi, Dinesh, Towner, Elizabeth, Vincenten, Joanne, Segui Gomez, Maria & Racioppi, Francesca. (2009). Doklad o profilaktike detskogo travmatizma v Evrope. [Report on child injury prevention in Europe]. Vsemirnaya organizaciya zdravooxraneniya. Evropejskoe regional`noe byuro. URL: https://iris.who.int/handle/10665/341342 (date of access: 03.01.2024).
3. Solov`eva K.S., Zaletina A.V. Travmatizm detskogo naseleniya Sankt-Peterburga. Ortopediya, travmatologiya i vosstanovitel`naya xirurgiya detskogo vozrasta. [Injuries among children in St. Petersburg]. 2017; 3. URL: https://cyberleninka.ru/article/n/travmatizm-detskogo-naseleniya-sankt-peterburga (date of access: 20.09.2023). (In Russian).
4. Marega L.A., Senkevich O.A., Lemeshhenko O.V., Kaplieva O.V. Prichina i struktura detskogo travmatizma v g. Xabarovske. [Cause and structure of child injuries in Khabarovsk]. Dal`nevostochny`j medicinskij zhurnal. 2019; 4. URL: https://cyberleninka.ru/article/n/prichiny-i-struktura-detskogo-travmatizma-v-g-habarovske (date of access: 20.09.2023). (In Russian).
5. Kolunin E.T., Prokop`ev N.Ya., Baranxin O.V. Profilaktika detskogo travmatizma na zanyatiyax fizicheskoj kul`turoj i sportom. [Prevention of childhood injuries in physical education and sports]. Sovremenny`e problemy fizicheskoj kul`tury i sporta. 2020:140-145. (In Russian).
6. Golovko O.V., Pavlenko T.N. Kliniko-statisticheskij analiz travmatizma sredi detskogo i podrostkovogo naseleniya g. Orenburga. [Clinical and statistical analysis of injuries among children and adolescents in Orenburg]. ZNiSO. 2017;10(295). URL: https://cyberleninka.ru/article/n/kliniko-statisticheskiy-analiz-travmatizma-sredi-detskogo-i-podrostkovogo-naseleniya-g-orenburga (date of access: 20.09.2023). (In Russian).
7. Shhetinin S.A. Analiz chastoty` i posledstvij travmatizma v Rossii. [Analysis of the frequency and consequences of injuries in Russia]. Sovremenny`e problemy` nauki i obrazovaniya. 2015;2-1:48. (In Russian).
8. Ruiz-Goikoetxea M., Cortese S., Aznarez-Sanado M. et al. Risk of unintentional injuries in children and adolescents with ADHD and the impact of ADHD medications: A systematic review and meta-analysis. Neuroscience and Biobehavioral Reviews. 2018;84:63–71. DOI: 10.1016/j.neubiorev.2017.11.007
9. Karamy`sheva M.B. Faktory, sposobstvuyushhie vozniknoveniyu povtornyx neprednamerennyx fizicheskix travm u detej v vozraste 5–10 let. [Factors contributing to the occurrence of repeated unintentional physical injuries in children aged 5–10 years]. Molodye issledovateli za ustojchivoe razvitie. Sbornik statej V Mezhdunarodnoj nauchno-prakticheskoj konferencii. Petrozavodsk, 2023: 239-250. (In Russian).
10. Baindurashvili A.G., Vissarionov S.V., Solovyeva K.S., Zaletina A.V. Detskij travmatizm i okazanie specializirovannoj pomoshhi detyam v megapolise. [Child injury and provision of specialized care to children in the metropolis]. Rossijskij vestnik detskoj hirurgii, anesteziologii i reanimatologii. 2018;8(2):16-23. DOI: 10.30946/2219-4061-2018-8-2-16-23. (In Russian).
11. Baindurashvili A.G. i dr. Detskij travmatizm v Sankt-Peterburge i okazanie travmatologicheskoj pomoshhi detyam v 2016–2018 godax. [Child in-

jury in St. Petersburg and provision of trauma care to children in 2016–2018]. Ezhegodnaya nauchno-prakticheskaya konferenciya, posvyashhennaya aktual`ny`m voprosam travmatologii i ortopedii detskogo vozrasta "Turnerovskie chteniya", 8–9 oktyabrya 2020 goda. Sbornik statej. Gl. red. A.G. Baindurashvili; red. S.V. Vissarionov, V.M. Kenis, A.V. Zaletina, A.V. Ovechkina, K.S. Solovyeva. Sankt-Peterburg; 2020: 31-39.

ЛИТЕРАТУРА

1. Гречухин И.В., Кульков В.Н., Фомичев В.В. Анализ заболеваемости детей вследствие травм, отравлений и болезней костно-мышечной системы по данным официальной статистики. Медицина. 2019; 7 (2): 24–39.
2. Sethi, Dinesh, Towner, Elizabeth, Vincenten, Joanne, Segui Gomez, Maria & Racioppi, Francesca. (2009). Доклад о профилактике детского травматизма в Европе. Всемирная организация здравоохранения. Европейское региональное бюро. URL: https://iris.who.int/handle/10665/341342 (дата обращения: 03.01.2024).
3. Соловьева К.С., Залетина А.В. Травматизм детского населения Санкт-Петербурга. Ортопедия, травматология и восстановительная хирургия детского возраста. 2017; 3. URL: https://cyberleninka.ru/article/n/travmatizm-detskogo-naseleniya-sankt-peterburga (дата обращения: 20.09.2023).
4. Марега Л.А., Сенькевич О.А., Лемещенко О.В., Каплиева О.В. Причина и структура детского травматизма в г. Хабаровске. Дальневосточный медицинский журнал. 2019. № 4. URL: https://cyberleninka.ru/article/n/prichiny-i-struktura-detskogo-travmatizma-v-g-habarovske (дата обращения: 20.09.2023).
5. Колунин Е.Т., Прокопьев Н.Я., Баранхин О.В. Профилактика детского травматизма на занятиях физической культурой и спортом. Современные проблемы физической культуры и спорта. 2020: 140–145.
6. Головко О.В., Павленко Т.Н. Клинико-статистический анализ травматизма среди детского и подросткового населения г. Оренбурга. ЗНиСО. 2017; 10 (295). URL: https://cyberleninka.ru/article/n/kliniko-statisticheskiy-analiz-travmatizma-sredi-detskogo-i-podrostkovogo-naseleniya-g-orenburga (дата обращения: 20.09.2023).
7. Щетинин С.А. Анализ частоты и последствий травматизма в России. Современные проблемы науки и образования. 2015; 2-1: 48.
8. Ruiz-Goikoetxea M., Cortese S., Aznarez-Sanado M. et al. Risk of unintentional injuries in children and adolescents with ADHD and the impact of ADHD medications: A systematic review and meta-analysis. Neuroscience and Biobehavioral Reviews. 2018;84:63-71. DOI: 10.1016/j.neubiorev.2017.11.007.
9. Карамышева М.Б. Факторы, способствующие возникновению повторных непреднамеренных физических травм у детей в возрасте 5–10 лет. Молодые исследователи за устойчивое развитие. Сборник статей V Международной научно-практической конференции. Петрозаводск; 2023: 239–250.
10. Баиндурашвили А.Г., Виссарионов С.В., Соловьева К.С., Залетина А.В. Детский травматизм и оказание специализированной помощи детям в мегаполисе. Российский вестник детской хирургии, анестезиологии и реаниматологии, 2018; 8(2): 16-23. DOI: 10.30946/2219-4061-2018-8-2-16-23.
11. Баиндурашвили А.Г. и др. Детский травматизм в Санкт-Петербурге и оказание травматологической помощи детям в 2016–2018 годах. Ежегодная научно-практическая конференция, посвященная актуальным вопросам травматологии и ортопедии детского возраста «Турнеровские чтения», 8–9 октября 2020 года. Сборник статей. Гл. ред. А. Г. Баиндурашвили; ред. С.В. Виссарионов, В.М. Кенис, А.В. Залетина, А.В. Овечкина, К.С. Соловьева. СПб.; 2020: 31–39.