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DETERMINATION OF THE AGASTON INDEX FOR PREDICTION OF CORONARY DISEASE IN PATIENTS WITH CHRONIC KIDNEY DISEASE

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Resume

80 patients aged 18 to 67 years were examined using multislice computed tomography (MSCT) of the coronary arteries. With a calcium index (CI) of the coronary arteries up to 100 units (units), isolated arterial stenoses were found. In 100% of patients with CI from 101 to 400 units. stenoses exceeded 50% and were multiple in all cases. With an index over 400 units. all examined patients had multiple stenoses of the coronary arteries, the maximum of which exceeded 70%. Conclusion: CI, determined using MSCT, can be used as an important screening method for detecting coronary artery atherosclerosis and determining cardiovascular risk.

Keywords: atherosclerosis, multislice computed tomography of the coronary arteries, calcium index, coronary heart disease, chronic kidney disease.

ОПРЕДЕЛЕНИЕ ИНДЕКС АГАСТОНА ДЛЯ ПРОГНОЗИРОВАНИЯ СТЕПЕНИ ПОРАЖЕНИЯ КОРОНАРНЫХ АРТЕРИЙ У БОЛЬНЫХ С ХРОНИЧЕСКОЙ БОЛЕЗНЬЮ ПОЧЕК

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Резюме

Обследовано 80 пациентов в возрасте от 18 до 67 лет с помощью мультиспиральной компьютерной томографии (МСКТ) коронарных артерий. При кальциевом индексе (КИ) коронарных артерий до 100 единиц (ед.) обнаружены единичные стенозы артерий. У 100 % пациентов с КИ от 101 до 400 ед. стенозы превышали 50 % и во всех случаях были множественными. При индексе свыше 400 ед. у всех обследованных были множественные стенозы коронарных артерий, максимальные из которых превышали 70 %. Вывод: КИ, определяемый с помощью МСКТ, может применяться как важный скрининговый метод выявления атеросклероза коронарных артерий и определения сердечно - сосудистого риска.

Ключевые слова: атеросклероз, мультиспиральная компьютерная томография коронарных артерий, кальциевый индекс, ишемическая болезнь сердца, хроническая болезнь почек.

SURUNKALI BUYRAK KASALLIGI BOR BEMORLARDA KORONAR ARTERIYALARINING YALLIG‘LANISH DARAJASINI BASHORAT QILISH UCHUN AGASTON INDEKSINI ANIQLASH

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THE DEPLORABLE OUTCOMES OF STROKES IN YOUNG CHILDREN

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Resume

Vascular pathology of childhood, especially in the early stages, is still difficult to study due to the fact that there are difficulties in diagnosis, differential diagnosis, which means that there are difficulties in the treatment and rehabilitation of children who have had this acute disorder.

The aim of the scientific work is to analyze the lethal outcomes of stroke in children depending on the type and age of stroke.

Materials and methods of the study were the data of 364 patients in the acute period of stroke within the framework of the scientific and applied project ADSS 15.23.4 "Development of pathogenetic methods for diagnosing strokes in young children and optimization of the principles of therapy" (2015-2015). 2017). The collection of clinical material was carried out on the basis of City Clinical Hospital No. 1. The age of children ranged from the 1st day of life to 18 years. The main group of cerebral strokes, depending on the type, was divided into ischemic, hemorrhagic, as well as a group with cerebral venous sinus thrombosis (CVS) complicated by hemorrhage.

Authors' conclusions: - The first clinical manifestations of hemorrhages are nonspecific, their development is gradual, which makes it difficult to objectively assess the severity of the child's condition. Anxiety, vomiting, convulsions, refusal of the breast are often regarded not only by parents, but also by doctors as an abdominal syndrome characteristic of this period, convulsions are not always adequately recognized.

- If other pathologies are not confirmed, especially in the presence of aggravating factors, it is necessary to check the presence or absence of disorders in the blood coagulation system in children. This will be an effective measure for the timely prevention of any form of early stroke.

Key words: complicated stroke outcomes in young children, Anxiety, vomiting, convulsions, breast rejection, convulsions, disorders in the blood coagulation system in children.

ОСЛОЖНЕНЫЕ ИСХОДЫ ИНСУЛЬТОВ У ДЕТЕЙ МЛАДШЕГО ВОЗРАСТА

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Резюме

Сосудистая патология детского возраста, особенно на ранних стадиях, до сих пор остается сложной для изучения в связи с тем, что возникают трудности в диагностике, дифференциальной диагностике, а значит, возникают трудности в лечении и реабилитации детей, перенесших это острое расстройство.

Цель научной работы - анализ летальных исходов инсульта у детей в зависимости от вида и возраста инсульта.

Материалы и методы исследования было данные 364 пациента в остром периоде инсульта в рамках научно-прикладного проекта ADSS 15.23.4 «Разработка патогенетических методов диагностики инсультов у детей раннего возраста, и оптимизация принципов терапии» (2015-2015 гг.). 2017). Сбор клинического материала осуществлялся на базе ГКБ № 1. Возраст детей колебался от 1-го дня жизни до 18 лет. Основную группу мозговых инсультов в зависимости от вида разделили на ишемические, геморрагические, а также группу с тромбозом церебрального венозного синуса (ЦВС), осложненным кровоизлиянием.

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Заключения авторов: - Первые клинические проявления кровоизлияний неспецифичны, их развитие постепенное, что затрудняет объективную оценку тяжести состояния ребенка. Беспокойство, рвота, судороги, отказ от груди часто расцениваются не только родителями, но и врачами как характерный для этого периода абдоминальный синдром, судороги не всегда адекватно распознаются.

- При не подтверждения других патологии, особенно при наличии отягощающих факторов, необходимо проверить наличие или отсутствие нарушений в системе свертывания крови у детей. Это будет эффективной мерой своевременной профилактики любых форм раннего инсульта.

Ключевые слова: осложненные исходы инсультов у детей младшего возраста, Беспокойство, рвота, судороги, отказ от груди, судороги, нарушений в системе свертывания крови у детей.

YOSH BOLALARDAGI INSURTLARNING ASORATLARI TAHLILI

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Rezyume

Bolalikdagi qon tomir patologiyasini, ayniqsa, dastlabki bosqichlarda, tashxis qo'yish, differentsial tashxis qo'yishda qiyinchiliklar mavjudligi sababli hali ham o'rganish qiyin, ya'ni bu o'tkir buzuqlik bilan kasallangan bolalarni davolash va reabilitatsiya qilishda qiyinchiliklar mavjud.

Ilmiy ishning maqsadi insultning turi va yoshiga qarab bolalarda insultning o'limga olib keladigan oqibatlarini tahlil qilishdir.

Tadqiqot materiallari va usullari ADSS 15.23.4 "Kichik bolalarda insult diagnostikasi uchun patogenetik usullarni ishlab chiqish va terapiya tamoyillarini optimallashtirish" ilmiy va amaliy loyihasi doirasida insultning o'tkir davridagi 364 bemorning ma'lumotlari edi. (2015-2015). 2017). Klinik materialni to'plash 1-sonli shahar klinik shifoxonasi bazasida amalga oshirildi. Bolalarning yoshi hayotning 1-kunidan 18 yoshgacha bo'lgan. Miya qon tomirlarining asosiy guruhi, turiga qarab, ishemik, gemorragik, shuningdek, qon ketishi bilan murakkablashgan miya venoz sinus trombozi (CVS) bo'lgan guruhga bo'lingan.

Mualliflarning xulosalari: - Qon ketishining birinchi klinik ko'rinishi nospetsifik bo'lib, ularning rivojlanishi asta-sekinlik bilan kechadi, bu esa bola ahvolining og'irligini ob'ektiv baholashni qiyinlashtiradi. Anksiyete, qusish, konvulsiyalar, ko'krakdan bosh tortish ko'pincha nafaqat ota-onalar, balki shifokorlar tomonidan ham ushbu davrga xos bo'lgan qorin bo'shlig'i sindromi sifatida qaraladi, konvulsiyalar har doim ham etarli darajada tan olinmaydi.

- Agar boshqa patologiyalar tasdiqlanmasa, ayniqsa og'irlashtiruvchi omillar mavjud bo'lsa, bolalarda qon koagulyatsiyasi tizimida buzilishlar mavjudligi yoki yo'qligini tekshirish kerak. Bu erta insultning har qanday shaklini o'z vaqtida oldini olish uchun samarali chora bo'ladi.

Kalit so'zlar: yosh bolalarda insultning murakkab oqibatlari, tashvish, qusish, konvulsiyalar, ko'krakni rad etish, konvulsiyalar, bolalarda qon ivish tizimidagi buzilishlar.

Relevance

Vascular pathology of childhood, especially in early stages, still remains difficult to study due to the fact that there are difficulties in diagnosis, differential diagnosis, which means that there are difficulties in the treatment and habilitation of children who have undergone this acute disorder. The complexity of diagnostic measures lies in the stigmatization of organizational measures aimed at the ultrasound, radiological diagnostic component due to the fact that pediatric hospitals are not equipped with the necessary equipment, and in addition, late referral and, accordingly, the progressive severity of the patients' condition do not always allow these activities to be carried out.

Children's stroke, despite its relevance, is a very common vascular pathology. Unfortunately,

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strokes in children, especially in young children, are often diagnosed with a significant delay [1], since diagnostic methods available for the adult population due to the equipment of "adult" clinics remain inaccessible to medical institutions designed for the children's part of the population. Late diagnosis undoubtedly affects the outcome, prognosis and costs, both for parents and the state. The diversity of the clinical picture is another obstacle to timely diagnosis. It is false to single out any one cause, since there are undoubtedly many complementary factors leading to vascular catastrophe.

Most epidemiological studies are based on a relatively small number of cases and do not have the authority to assess socio-demographic or socio-economic differences [1]. The existence of a pediatric stroke registry is a matter of perspective that requires huge efforts from both healthcare organizers and practitioners. Many reviews of the literature refer to the Canadian Pediatric Stroke Registry, which has led to advances in both diagnosis and treatment and prevention [2].

One of the deplorable outcomes of stroke in general is lethal, and the ratio of this outcome varies depending on the economic level of the country, geographic region, ethnicity, type of stroke, age of stroke and, of course, the timeliness of diagnosis and the state of the premorbid background of the child. Indeed, in fact, the risk factors and etiology listed in the literature often do not exist in isolation, but, on the contrary, combine with each other, creating a threat to the health and life of the child.

The most severe type of stroke, the severe outcomes of which will be discussed in this article, has tended so far to increase in prevalence in early child

The epidemiology of hemorrhagic stroke in children is based mainly on the results of individual local studies or case reports. The greatest interest and at the same time the maximum a number of discussions are centered around patients with onset of the disease before the age of 1 year. Thus, among newborns, stroke develops in 1 out of 4,000 full-term live [3]. It is worth noting the dependence of the incidence of stroke on gestational age - 28.6 cases per 100 thousand born before the 31st week of gestational age and 24.7 cases after the 31st week [4, 5]. It is estimated that the frequency of strokes in children ranges from 2.5 to 13 per 100,000 per year [6] The incidence of stroke among children under 1 year of age in the United States is 7.8, in France it is about 13, and at an older age it barely reaches 2–3 per 100,000 populations per year [7]. The same pattern in the scatter of data is observed when assessing lethal outcomes: for every 1 million children under 5 years of age, there are 15 deaths annually, and for those over 5 years of age, 7 deaths from cerebrovascular diseases, which is 10% of the total mortality in neurological departments [1]. The frequency of lethal outcomes is higher among boys and patients of the Negroid race, as well as in hemorrhagic stroke (HI), in these groups it reaches 29% [7, 8]. 1 year [8]. According to Komarov [9], the total mortality from childhood strokes in the average is 12%; medium risk of recurrence stroke - about 20%. Mortality from stroke in children is approximately 10-25% [1]. It is important to note that hemorrhagic stroke has a significantly higher mortality rate than ischemic stroke.

According to the Canadian Pediatric Stroke Registry, out of 1129 children included in the study, the incidence of stroke in children aged 29 days - 18 years is 1.72 / 100,000 per year, and in newborns from birth to 28 days - 10.2 / 100,000 live births [10].

In addition, the prevalence of hemorrhagic stroke is approximately 2 times higher in developing countries [1]. On the other hand, the prevalence of ischemic stroke has historically been 4-5 times higher in developing countries compared to developed countries. After the first event, up to 25% of children will have a second stroke [1]. Although it is worth noting that with correct and timely diagnosis, the outcome in children with stroke may be more favorable than that in adults.

Speaking about outcomes, lethal in particular, we should note that the most significant risk factors for stroke in children are vasculopathy, various infections, cardiac causes, coagulopathy, vascular anomalies, malformations, hematological diseases, kidney diseases, even ill-treatment with children [11], autoimmune diseases, metabolic disorders and head injuries. Moreover, each type of stroke has its own causative factors. Some authors consider thrombocytopenia and cavernous malformations to be the causes of perinatal hemorrhagic stroke [12].

Undoubtedly, hemorrhagic disease of the newborn, or vitamin K-deficient hemorrhagic syndrome, is also important - a disease manifested by increased bleeding in newborns and children in

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the first months of life due to a deficiency of blood coagulation factors (II, VII, IX, X), the activity of which depends on vitamin K [thirteen]. However, some authors indicate that in 40% of cases of perinatal hemorrhagic stroke, it is impossible to note any risk factors for the development of this pathology [12].

When classifying strokes in children, especially strokes in young children, the pathogenetic mechanisms of ischemic, hemorrhagic strokes, as well as thrombosis of the cerebral venous sinuses are discussed.

Unfortunately, the diagnosis of sinus thrombosis in young children is also subject to shortcomings and often the diagnosis is made late, after thrombosis is accompanied by intracranial hemorrhage. In our studies, since the discussion is about severe cases and deaths, this type of disorder is treated as a mixed stroke.

The purpose of this work is to analyze lethal outcomes of stroke in children in relation to the type and age of stroke.

Materials and methods

The clinical part of the study involved 364 patients in the acute/acute periods of stroke within the framework of the scientific applied project ADSS 15.23.4 “Development of pathogenetic methods for diagnosing strokes in young children and optimization of the principles of therapy (2015-2017). The collection of clinical material was carried out on the basis of the City Clinical Children's Hospital No. 1. The age of the children ranged from the 1st day of life to 18 years. The main group of cerebral strokes, depending on the type, was divided into ischemic, hemorrhagic, as well as a group with cerebral venous sinus thrombosis (CVS) complicated by hemorrhage.

An assessment was made of the age and sex characteristics of the child, the anamnesis of the parents (both father and mother), the age of the parents, and the diseases suffered by the mother before and during pregnancy. Somatic and neurological deficits were also assessed. An analysis of the survival of patients was carried out and, accordingly, follow-up observations were carried out for 3 years after the stroke. Instrumental diagnostic methods included neurosonography and magnetic resonance imaging. This article presents a fragment concerning fatal cases of stroke in children.

The main criteria for inclusion in the study of deaths were: patients who are hospitalized in the ICU, aged from birth to 2 months of life, who have suffered acute cerebrovascular accident of the hemorrhagic type, as well as children with CVT complicated by hemorrhage, verified by neuroimaging, and also, having written informed consent from their parents to participate in the study.

The exclusion criteria were: the age of patients older than 3 months of life, who had suffered an acute cerebrovascular accident of the ischemic type, the absence of informed written consent from the patient's parents to participate in a clinical trial.

Statistical analysis was carried out using Microsoft Excel 2013 and SPSS 19 (IBM, USA). The method of descriptive statistics was used in the work. All data are presented as means (M) and standard error of the mean (±m). When analyzing the results, the values at $p < 0.05$ were considered statistically significant.

Of 364 patients, 227 boys and 137 girls, the overall mean age at first stroke was 242.47±667.5 days. By age when the first stroke occurred, the patients were divided into 4 groups: 1st group: 0-29 days of life (n=76), 2nd group: 1-12 months of age (n=238), 3rd group: 1-3 years of age (n=28), 4th group: 3 years and above (n=22).

Hemorrhagic stroke was in 138 patients (on average, stroke occurred 79.6 ± 191 days from birth). CVVT was detected in 83 children, which occurred on average 73.2 ± 122 days from birth. CVT occurred 2 times less often than hemorrhagic, remained prognostically difficult, which is a continued process after an ischemic catastrophe with transformation into hemorrhages.

Results and discussion

The “youngest” stroke was a stroke in young children (Table No. 1). The statistical processing of the data in a comparative aspect showed that the assessment of the age of onset of stroke between IS and GI was expressed in the difference between the mean values of 418.2 ± 77.2, $p < 0.001$. The 95% CI for the mean difference between the two groups was 266.3 to 570.1. Between the IS group and the CVT group there was a difference between the mean scores of 424.6 ± 89.3, $p < 0.001$. The 95% CI for the mean difference between the two groups was 249.0 to 600.3. There was a difference between the mean scores of 6.4 ± 89.9 between the GI group and the CVT group, $p = 0.943$. The 95%

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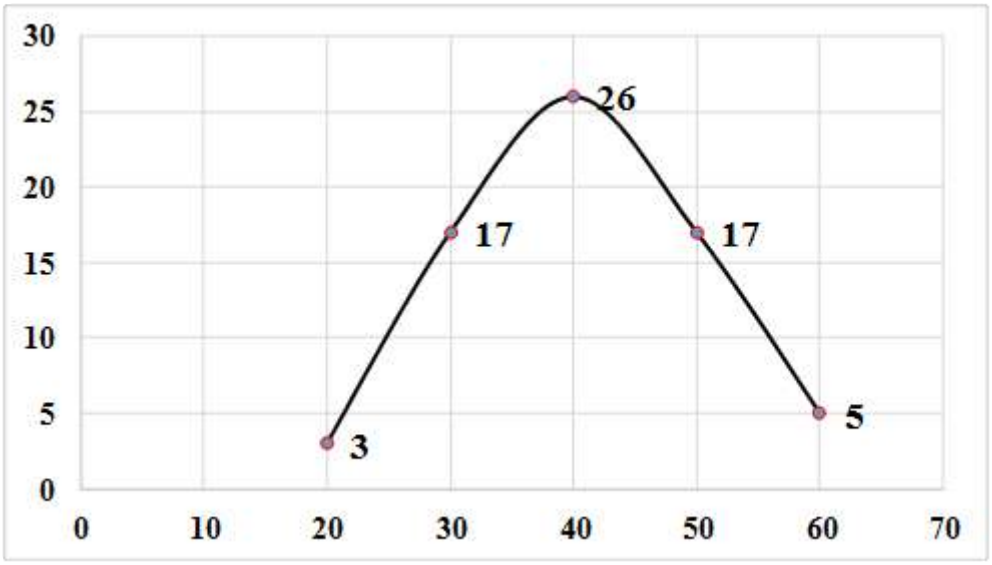
CI for the mean difference between the two groups was -170.4 to 183.2.

Traditionally, literary sources note the prevalence of males, but in our studies, there was a prevalence of girls in 11 cases against 9 cases in boys.

This suggests that ischemic strokes occurred in the study group statistically significantly later, on average by 1.2 years, compared with hemorrhagic strokes and CVT. There was no difference between the timing of hemorrhagic strokes and CVT. The lack of difference in the implementation of hemorrhagic strokes is due precisely to the fact that their onset is usually acute, with pronounced clinical symptoms, and ischemic strokes, as a rule, are most often not diagnosed on time, tend to have a "silent picture", especially in young children., are more often interpreted as perinatal CNS damage or hypoxic-ischemic encephalopathy, which should also be noted in relation to CVT.

Diagram No. 1 The frequency of hemorrhagic stroke depending on age



Note: Horizontally - days of life; vertically - the number of patients

We have traced the influence of certain factors on the final outcome of stroke, expressed in mortality.

Of 364 patients, death was observed in 20 cases. which accounted for a total of 5% of the total [illegible]ie group we studied. Of course, we analyzed the influence of risk factors and subjected them to statistical processing. Of this number of deaths, 9 patients were operated on (60 patients were subjected to surgery for hemorrhage, 9 patients accounted for 15% of the total number of those operated on), more precisely, the deplorable outcome occurred after surgical interventions, which also forced us to reconsider the timing in which the operation took place. 2 patients were operated on in the acute period (0-72 hours), the rest 7 were operated on in the acute period (up to 14 days) of stroke, more precisely on days 4-5. The average age of this group of children was 47 days. (Figure to do.)

Two operated patients end their lives 2 years and 3 years after surgery. These patients had hereditary coagulopathy, layering of the infectious process (viral) and during the life allotted to them after surgery, there was severe neuropsychiatric symptoms with resistant post-stroke epilepsy. These patients had CVT with a hemorrhagic complication.

The infectious factor is of great importance in the implementation of hemorrhages in young children, and therefore we also subjected data on certain infections to statistical processing. So, in terms of the presence of TORCH infection, it was noted that TORCH infection, which includes mainly cytomegalovirus, herpes infection, toxoplasmosis and other varieties, in the modern world has proven its influence on the development of certain pathological conditions. Hypertrophied interest in these infections, their over diagnosis is not ruled out, but nevertheless, our studies

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included an analysis of these infections in order to consider the presence or absence of their influence on the development of strokes in children (serological and PCR diagnostics). For TORCH infection, statistically significant information was revealed that the infection is characteristic of hemorrhagic strokes and significantly prevailed compared to ischemic strokes (p=0.012), and was also characteristic of the group with CVT (p=0.062), which are considered the most severe., since in this group of children a cascade of prothrombotic disorders was already launched, the correction of which did not take place at an earlier date. In fact, according to a number of sources [14], viral infections, in this case CMV and herpes, form a picture of vasculitis, which has a high risk of hemorrhagic syndrome.

All children at this critical age had neonatal jaundice, regarded in each of them as pathological.

The combination of neonatal factors, which include neonatal jaundice, has a high risk of hemorrhagic syndrome, which ultimately causes intracranial hemorrhage. It was this factor that was important for hemorrhagic ($p < 0.001$) and mixed strokes ($p = 0.001$).

On the example of children with early hemorrhagic and mixed strokes we decided to test whether the presence of a clotting disorder in children is a risk factor for the earlier occurrence of any type of stroke and found that there is a statistically significant pattern. By linear regression analysis, B (Beta) = 613.6 ± 103.46 (95% CI for Beta = 410.2 to 817.2), $p < 0.001$, we found that coagulation disorders in children are $R^2 = 0.039$ ($p < 0.001$), which is 3.9% of all variable causes of early stroke in children.

Coagulation disorder was detected in 10 of 17 children who died in a 30-day period. We performed a binary regression analysis showing that the risk of 30-day death in children with stroke with clotting disorders was 3.1 times higher than in those without clotting disorders.

This means that at the birth of a child, especially in the presence of aggravating factors, it is necessary to check the presence or absence of disorders in the blood coagulation system in children. This will be an effective measure of timely prevention of any type of early stroke! At the heart of the pathogenesis of stroke, HI in particular, are changes at the level of several body systems, ranging from neuronal to the hemostasis system. That is why the hemostasiogram and its changes play the main, leading role in the occurrence of hemorrhagic catastrophes in young children.

Moreover, this factor is an independent predictor of deaths within a 30-day period after a stroke.

We analyzed cases of 30-day mortality, mortality within a year, and mortality within 3 years. Pearson's bivariate correlation was performed, with a two-tailed test for significance between reported timing of mortality and risk factors for morbidity.

Table No. 1 General characteristics of clinical signs and provoking factors of GI in children

	n =20	%
Floor		
boys	9	45
Girls	11	55
Age at the time of stroke	47 ±9.85 SD	
Etiological and provoking hemorrhage factors		
ARI	10	15
OKZ	2	10
DIC and coagulopathy	18	90
Blood diseases	2	10
Vascular anomaly	3	15
Bilirubinopathy (jaundice in newborns)	19	95
Presence of TORCH infection	14	70
Signal clinical signs :		
Anxiety	18	90
Breastfeeding	13	65
Vomit	9	4.5
Constant crying	18	90
convulsions	20	100
Bleeding from the injection site	16	80
Hyperthermic syndrome	13	65

Note: in a number of patients, the above signs were found in combination, and therefore their sum does not correspond to the total number of patients.

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Thus, 30-day mortality, mortality within a year and 3 years was more common in patients of early age, i.e. the death rate was influenced by the age of the stroke, the younger the child, the higher the risk of death.

According to the results of the studies, a general description of the clinical signs and provoking factors of GI was presented.

If we take into account the gestational age of the child, then according to our results, it cannot be argued that "the lower the gestational age, the higher the risk of developing hemorrhages", since in our studies the low gestational age was not indicated as the highest risk group.

In 90% of cases, there was a statement of DIC, but it would be incorrect to attribute this syndrome to provocation factors, since this condition, being a consequence of hemostasis disorders, is only a reflection of complex, initially difficult to diagnose conditions. From this point of view, it is quite appropriate to once again emphasize the role of infections (70%), bilirubinopathy (95%), which are previous in this chain of causes. Signs of DIC were manifested by increased bleeding from injection sites, small punctate skin hemorrhages 18 (90%). Such a group of patients, due to the severity of their condition, was initially admitted to the intensive care unit due to bleeding.

Since it is possible to assume several triggers in the development of hemorrhages, such conditions as ARI, diarrhea, the fact of vaccination and other episodes, we have defined as "provoking factors".

In addition, the time of treatment was important for us, which affected the rather serious condition of patients, up to death, since there was mainly a late appeal (17 cases), the difficulty of identifying the main problem until the child showed signs of DIC, but unfortunately, this is a fact that should deserve the close attention of pediatricians, family doctors, i.e. primary health care professionals.

The condition of all children was regarded as severe or extremely severe, there was a decrease in spontaneous motor activity in the first hours of the disease, impaired consciousness (stupor, coma), respiratory rhythm, decreased response to stimuli, decreased or suppressed reflexes of innate automatism, which confirmed the severity of the condition.

The gradation of the level of consciousness was determined according to the Glasgow coma scale and distributed according to the traditional scheme in such cases, it was almost equal from the level of stupor to coma- II, and the more severe the impairment of consciousness, the higher the lethal outcome in patients, respectively. Coma- III was stated in 4 cases, these were cases of rather late treatment, after treatment at home for 7-10 days, when the condition of the patients was very serious from the moment they arrived at the stage of emergency care. In 3 cases of this number of patients, a lethal outcome was noted without surgical intervention.

Surgery for hemorrhagic strokes among neurosurgeons carries the informal title of "surgery of disappointments" due to the fact that it is often accompanied by adverse outcomes [14].

Table No. 2 Type of hemorrhage in analyzed patients according to CT data

	n =20	%
Parenchymal hemorrhage	2	10
Parenchymal with rupture of the gallbladder	2	10
SAH + Parenchymal hemorrhage with rupture of the ventricular system	6	30
Subdural hemorrhage + SAH + parenchymal	6	30
Subdural hemorrhage + SAH	3	15
Subdural hemorrhage + parenchymal	1	5

The study of the brain using CT made it possible to determine the localization of hemorrhages. From the point of view of discussing the most severe outcomes, and lethal ones in particular, it is worth noting that the most "deplorable " group is represented by the group with subarachnoid and parenchymal hemorrhage with a breakthrough into the ventricular system (6 patients out of 20 with a fatal outcome), as well as cases of subdural hemorrhage + SAH + parenchymal hemorrhage (also 6 patients out of 20). Hemorrhages with a breakthrough into the

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ventricular system belong to the group of hemorrhages with an unfavorable prognosis.

As we have already noted, out of 20 children with a fatal outcome, 9 patients were operated on, more precisely, out of the entire cohort of 364 examined according to the scientific project, a total of 60 children were operated on, which amounted to 16.4%.

One patient had a recurrent hemorrhage after 20 days. A long stay in a "vegetative" state ended in the 4th year of the child's life with a fatal outcome.

An analysis was made of the path anatomical conclusion of lethal outcomes, where there were indications of stroke. As the immediate cause of death, stroke was indicated in 69.2% of cases, pneumonia - in 38.4%, encephalitis / meningitis in 15.3% of cases. Most likely, extra cerebral causes were primarily secondary, since, for example, pneumonia was not indicated as a provocation factor or cause at the beginning of the hospital stage.

Table No.3 Pathological anatomical conclusions of a lethal outcome

Cause of death	Abs.	%
ONMK	14	69.2
Meningitis/encephalitis	3	15.3
Vascular anomaly	2	10
Pneumonia	8	38.4
Myocarditis	1	7.69

Note: in a number of patients, the above causes were found in combination, and therefore their sum does not correspond to the total number of patients.

15 patients out of 20 who died were subjected to post-mortem autopsy. At the insistence of the parents, 5 patients did not undergo a path anatomical autopsy.

At autopsy of 15 deceased non-operated patients, confirmation of the type of hemorrhage was obtained, with the exception of one discrepancy in the diagnosis, where Subdural hemorrhage + SAH + parenchymal hemorrhage was found.

From our observations, it is definitely worth noting that in young children, especially when analyzing lethal cases, it should be taken into account that hemorrhages in children are the result of a multifactorial effect that requires taking into account the physiological characteristics of the hemostasis system (low concentration of anticoagulant proteins, plasminogen deficiency and vitamin K-dependent factors in blood plasma), anatomical features of hemodynamics, prothrombotic disorders (probably hereditary or acquired), causing a hypercoagulable state, the presence of infection and the likelihood of an undiagnosed anomaly (including vascular). Based on these features, we draw some conclusions:

Conclusion

1. The first clinical manifestations of hemorrhages are nonspecific, their development is gradual, which makes it difficult to objectively assess the severity of the child's condition. Anxiety, vomiting, convulsions, refusal of the breast are often regarded not only by parents, but also by doctors as an abdominal syndrome characteristic of this period, convulsions are not always adequately recognized.
2. Verification of the pathogenetic variant of stroke, the appointment of targeted and inexpensive secondary prevention, the implementation of studies for the presence of a biochemical marker of gene carriage, candidates for thrombotic events will contribute to a more favorable course of the disease with a more comforting outcome.
3. The most severe type of hemorrhage is subarachnoid and parenchymal hemorrhage with a breakthrough into the ventricular system, as well as cases of subdural hemorrhage + SAH + parenchymal hemorrhage, worsening the course and prognosis of hemorrhagic stroke.
4. Late or imperfect diagnosis of cerebral venous sinus thrombosis with subsequent hemorrhagic syndrome also causes an unfavorable outcome of the disease.

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