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Differential - Diagnostic Features of Affective - Respiratory Attacks in Children and Optimization of Treatment

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Absract: Affectively - respiratory attacks are periods when a small child does not breathe, turns blue and sometimes loses consciousness. The frequency of ARP in the pediatric population is 5-27% [1,2,12]. The phenomenon is three times more common in boys than in girls. The frequency of attacks varies from single per year to several times per day. Attacks usually begin in the first year of life (sometimes even immediately after childbirth), in rare cases - after 6 years. They are most common in the second year of life and usually disappear after the third year of life [3,4,13]. For parents, this is a terrible experience.

Keyword: Treatment, Children.

Introduction. In most cases, the trigger is anger or frustration. Pain or other irritants are less common. Without a preliminary stimulus, an attack occurs very rarely. After a short period of crying, breathing suddenly stops during exhalation. The child becomes bluish (first around the lips), then becomes lethargic and sometimes loses consciousness for a short time. The average peak frequency is about 1 attack per week. In 25% of children, the peak frequency is at least 1 attack per day. In the second year of life, the frequency is highest, on average at the age of 18 months [11]. After the third year of life, ARP appears in most children. About 25% of children with ARP have a positive family history. In families where ARP is common, the probability of ARP is about 50% if one of the parents had ARP [16,17,18,19]. Inheritance is likely autosomal dominant with reduced penetrance. This means that the family history may be clearly positive, but the ARP may sometimes skip a generation [5,7]. The origin of ARP is as follows: strong crying leads to hypocapnia, reflex respiratory arrest leads to hypoxemia, and spasm of breathing during exhalation leads to an increase in intrathoracic pressure [1].

Diagnosis - The key to making a diagnosis is the medical history. The general pediatrician makes a diagnosis based on the description of the parents [8,9,10]. During the general and neurological

examinations, not a single gene of anomaly was found. It is important to exclude especially cardiac and neurological pathology.

Commonly used treatments. The pediatrician advises to leave the child lying down during an attack to prevent falls and improve cerebral circulation [3]. He reassures the parents and the child and explains that the child is not doing this on purpose. Recommendations for the identification of trigger factors are almost impossible to avoid, and this is not important for treatment and prognosis [14,15,16].

There is a link between iron deficiency anemia and ARP. Piracetam may have a beneficial effect on the incidence of ARP, but this drug is not indicated in the general prescribed practice [17,18,19].

The aim of the study was to study the clinical and neurological features of ARP with the development of an optimal variant of management tactics.

Material and research methods. A total of 70 children aged 1 to 42 months were examined as part of the targeted study. The main group (I group) consisted of 40 children with ARP. The comparison group (II) included 30 children without paroxysms. This group includes infants who have not had paroxysmal disorders of consciousness throughout their lives, as well as signs of organic damage to the central nervous system. The studies were carried out in consultative polyclinics at the clinic of the Tashkent Pediatric Medical Institute. The gender ratio of the examined children was 1:1.4 in favor of boys. The average age of children from the main group was 1.60±0.29 years, from the control group 1.66±0.33 years, respectively. The algorithm for examining children included: general clinical, neurological, psychological and neurophysiological (EEG brain studies) examination of children. For EEG recording, 16-channel electrode systems were used (depending on the size of the head).

Discussion of the research results. The results of the anamnestic data revealed that the following risk factors were statistically significantly more common in the main group: pathological course of pregnancy in the mother ($p<0.05$), perinatal hypoxia ($p<0.01$), intranatal hazards ($p<0.01$) and natal injuries of the cervical spine with spinal cord injury ($p<0.05$).

The debut of affective-respiratory attacks occurred in prevailing cases at the age of 6-12 months (38%), at 13-18 months of age (34%), up to 6 months of age (10%), 19-24 months of age (10%) and after 2 -years of age (8%). The following factors acted as provoking factors: anger, rage in 70%; pain, injury, injection in 18%; fright, fear in 12% of cases. But often there was a combination of several provoking factors.

When analyzing hereditary predisposition according to ARP, it was revealed that 20% of the surveyed families had a positive family history with the same representation of the syndrome in generations, both on the maternal and paternal lines.

The frequency of seizures in the examined children varied: 42% of children had up to 5 seizures per month, 48% of children had 5-10 seizures, and 10% of children had more than 10 seizures per month. The duration of seizures also varied: in 26% of cases, seizures lasted up to 10 seconds, in 56% of cases 10-30 seconds, and in 18% of cases the duration of seizures exceeded 30 seconds. The distribution of children depending on the nature of the seizures was as follows: in 82% of cases, neurotic seizures were noted, in 18% - affectively provoked syncope. Changes in the color of the skin of children during attacks also had a different character: in 34 (68%) children, the skin during attacks acquired a cyanotic tint, in 9 (18%) - a pale tint, and in 7 (14%) - sometimes cyanotic and sometimes pale shade.

The study of the somatic status indicates a natural somatic morbidity in both groups. However, in group I, there was a more frequent occurrence of functional disorders of the upper gastrointestinal tract (GIT) ($p = 0.019$) and anemia ($p = 0.018$) than in the comparison group.

During a detailed examination of patients with ARP, we drew attention to the absence of severe neurological symptoms. Neurological examination revealed many features that unite our patients. The percentage and severity of diffuse muscular hypotension turned out to be unexpectedly high - 25 children (62%). In 30% (12 children) of patients, mothers noted motor awkwardness, it was in these cases that we found minor coordination disorders.

To study the functioning of the autonomic nervous system, the method of cardiointervalography (CIG) was used. When assessing the state of the autonomic nervous system, the initial autonomic tone (IVT), autonomic reactivity (VR), the stability of the regulation of autonomic processes, and the activity of subcortical nerve centers (ASNC) were taken into account. When assessing the initial autonomic tone in the main group, eutonia was recorded in 12 (30%) children, activity of the sympathetic division of the autonomic nervous system (sympathicotonia) prevailed in 24 (60%) children, activity of the parasympathetic division of the autonomic nervous system prevailed in 7 (18%) children. systems (vagotonia). In children with cyanotic seizures, hyperactivation of the sympathetic nervous system prevailed, and in children with a pale type - of the parasympathetic nervous system. In 37.6% of the examined patients, there was a predominance of the tone of the parasympathetic nervous system, in 28.9% of the children the sympathetic department dominated, in 33.5% of cases eutonia was recorded.

According to the results of the assessment of the psycho-emotional status, it was noted that the children of the first group had an excessive emotional response, resentment, increased anxiety and aggressiveness, and a lower level of social maturity.

According to the results of a general blood test in the main group, 6 (15%) children had normal indicators, 9 (23%) anemia of the 1st degree, 20 (50%) - anemia of the 2nd degree, 5 (13%) anemia 3-degrees.

According to the results of the analysis of the calcium content in the blood serum in the main group, only 7 (18%) children had normal values, 33 (83%) children had hypocalcemia.

Neurophysiological studies showed mild changes: low-amplitude theta and delta waves were recorded in 24 (60%) children, signs of irritation and involvement of cortical-subcortical structures in 9 (23%) children, fragments of an unstable alpha rhythm in the parieto-occipital regions in 7 (18 %) of children.

Basic therapy with the inclusion of iron and calcium showed a beneficial effect. The result showed that after iron therapy, there was a decrease in the severity and frequency of ARP. Improved psycho-emotional state. No adverse effect has been identified.

In the treatment of ARP, the effectiveness of piracetam was less significant. All patients received piracetam (50–100 mg/kg) daily for 3–6 months). Follow-up was carried out 3 months after stopping treatment. The overall effect was that there were fewer seizures than in the previous period.

Conclusion. It was revealed that the formation of ARP is associated with perinatal factors, as well as developmental diseases of infancy (functional disorders of the gastrointestinal tract, iron deficiency and hypocalcemia). Therapy of affective-respiratory paroxysms should be differentiated. Treatment of anemia shows marked improvement. The described effect of piracetam is not confirmed by qualitative studies. The most valuable method for diagnosing ARP was electroencephalography.

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