

HEADACHES AND OTHER MIGRAINE DISORDERS IN CHILDREN - SELECTED PROBLEMS

WYBRANE PROBLEMY BÓLU GŁOWY I INNYCH MIGRENOWYCH ZABURZEŃ U DZIECI

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STRESZCZENIE:

Tło. Sam ból głowy jak i pozostałe objawy migrenowe mogą zaburzać funkcjonowanie dziecka na każdym etapie jego rozwoju. Ze względu na złożony mechanizm czynników wyzwalających bóle głowy, a także towarzyszące im zaburzenia psychosomatyczne, dzieci dotknięte migreną wymagają indywidualnego podejścia oraz wielospecjalistycznej terapii.

Cel. Przybliżenie problemów zdrowotnych, behawioralnych i psychospołecznych dzieci dotkniętych migreną z perspektywy lekarza i psychologa na podstawie literatury przedmiotu oraz własnych doświadczeń klinicznych.

Metody. Wspólne opracowanie wyjaśniające.

Konkluzje. Istnieje potrzeba rozszerzenia wiedzy na temat bólów głowy i innych migrenowych zaburzeń u dzieci, wśród ich rodziców, nauczycieli oraz rówieśników.

Słowa kluczowe: ból, migrenowe zaburzenia, dzieci.

SUMMARY

Background. Headache, as well as the other migraine symptoms can impair the functioning of the child at every stage of his/her development. Children affected by migraine require an individual approach and multispecialty treatment because of the complex headaches-triggering mechanism, as well as accompanying psychosomatic disorders.

Aims. Bringing closer health, behavioral and psychosocial problems of children affected by migraine from the perspective of a physician and a psychologist on the basis of the literature and our own clinical experience.

Methods. Collaborative explanatory consideration.

Conclusions. There is a need to increase cognizance of headaches and other migraine disorders in children among parents, educators and the children's peers.

Key words: pain, migraine disorders, children.

INTRODUCTION

Headaches have accompanied humankind since time immemorial, as evidenced by references placed on the ancient Egyptian papyrus scrolls. Hippocrates (400 B.C.) in ancient Greece also emphasised that phenomenon, as well as the following symptoms proceeding it: vision impairment, nausea, vomiting, light and smell hypersensitivity. In our age, those symptoms are associated with migraine aura. Headaches are the most prevalent neurological disorders – 90%

of the general population report a lifetime history of headache, and 3% from them have chronic headache (15 days per month or longer). Migraine affects about 13 to 18% of the population and it is a serious problem generating numerous difficulties in an individual's psychosocial functioning. The prevalence of migraine in children and adolescents is 7.7%. One of the most potent and consistent risk factors for migraine is a family history of migraine. There is a variety of clinical forms and mental disorders accompanying migraine, such as confusion, excitation, distur-

bance of consciousness and anxiety [1, 2]. All types of migraine have a common and typical feature, which is their paroxysmal or recurrent occurrence, and episodes of pain are separated by asymptomatic periods. The mechanism of migraine headache is not yet completely recognized and understood. With the availability of modern diagnostic technology, pathomechanisms involving immunological, biochemical and even pharmacogenetic changes underlying complaints sustained in the course of migraine syndrome can be understood to a large extent. The major symptom here is a headache, often one-sided, pulsating, which may be accompanied by photophobia, hypersensitivity to sounds and smells, and nausea [3].

Migraine headaches were classified by the International Headache Society according to the criteria considering the factors triggering the disease, a description of typical symptoms during a migraine attack and preceding the attack, as well as the differences in clinical course and negative impact on the quality of life. The second edition of the International Classification of Headache Disorders, Second Edition – (ICHD-II) considers so called childhood periodic syndromes preceding migraine [4]. Those syndromes are not accompanied by pain, which is the major migraine syndrome. They come in the form of such episodes as dizziness, torticollis, visual and sensory-motor problems, and the gastrointestinal symptoms (loss of appetite, abdominal pain, nausea and vomiting) between which no evidence of any ailment is observed. However, those symptoms may precede the onset of migraine a few years ahead. In the past, this state was called migraine equivalents or precursors, and now – childhood periodic syndromes, considered to be a variant of migraine in children. Those children are completely healthy between episodes, however, during an attack of periodic syndromes they feel very bad. Those children often have a family history of migraine and a tendency (when the child reaches maturity) to change into the form of migraine headaches [5]. At the outset, many diseases can be mistaken for childhood periodic syndromes. These include congenital metabolic syndromes, including mitochondrial dysfunction and impaired function of ion channels. Childhood periodic syndromes are a challenge to physicians because their clinical diagnosis and epidemiological analysis can be very difficult. Their diagnosis should be determined on the basis of the exclusion of other obvious causes of those disorders.

The diagnosis can be made after a thorough medical history, conducting a physical examination and appropriate additional tests including metabolic and neurodiagnostic tests. In the pediatric population, headaches are common symptoms. As for frequency,

they are the third cause of absenteeism in school children. More often than adults, children present a form of migraine headaches with the simultaneous occurrence of abdominal pain, nausea and vomiting.

AIM OF WORK

The purpose of this paper is to present health, behavioral and psychosocial problems of children affected by migraine, based on the authors' own clinical experience and literature. Due to the complexity of this problem, we propose an interdisciplinary approach to the issue of providing help to those patients. We do this from the perspective of a physician (anesthesiologist) and a psychologist. We emphasize the importance of psychoeducation of the persons with whom the child comes into contact in their natural home environment and school.

CLINICAL PROBLEMS

The incidence of all types of migraine attacks is related to clinical problems of the biological background. The feeling of nausea and the inability to stop vomiting are fairly common symptoms. Temporary blurred vision accompanying migraine can affect the child's safety while moving up and down the stairs, crossing the street, or using the lift. The negative impact of migraine attacks on the individual's health is also spreading through the feedback loop. It is the psycho-neuro-immune path consisting of neurohormonal reaction manifesting itself in the feeling of anxiety and reduced resistance [1]. The sudden appearance of paroxysmal symptoms in the previously healthy child is always a source of severe stress for the child, his parents, teacher or even a pediatric patient's physician. The knowledge of clinical symptoms of childhood periodic symptoms and pathomechanisms triggering them facilitates the appropriate procedures such as diagnosis, treatment, prevention and rehabilitation. Recurrent clinical symptoms that occur in a healthy child are distinctive in that case. The clinical picture varies from torticollis through paroxysmal pain in the extremities and paroxysmal vomiting, to paroxysmal abdominal pain. Motion sickness is also associated with childhood periodic syndromes [5]. The International Classification of Headache Disorders (ICHD) distinguishes the following childhood periodic disorders:

- a) benign paroxysmal torticollis – the first episode usually occurs in children at about 5 months of

- age; manifests itself in torticollis and dystonia; episodes last about 4–5 days, the syndrome recedes around 3–5 years of age;
- b) benign paroxysmal vertigo, which occurs with the frequency of 2–2.6% in the pediatric population; the first episode occurs at about 3 years of age; episodes of dizziness and ataxia may last from several seconds to 72 hours; the syndrome disappears most often at five years of age, but it may take up to 16 years of age;
- c) abdominal migraine, which affects about 2.4–4.1% of the children, is revealed mostly at the age of 7 years, but may occur as early as infancy up to adulthood; abdominal pain is accompanied by pallor; episodes of seizures may last for about 4 hours (average of 1 h to 72 h), the syndrome recedes during adolescence, but it can persist to adulthood;
- d) cyclic vomiting syndrome applies to 0.04–1.9% of the population of children; the first episode occurs at about 5 years of age; the predominant symptoms are paroxysmal episodes of nausea and vomiting, which may persist from 2 hours to 24 hours (sometimes up to 10 days); the syndrome recedes around 10 years of age but may persist into adulthood [4].

The knowledge of those symptoms can significantly reduce the number of diagnostic tests to diagnose the childhood periodic syndrome. Their most important clinical feature is episodic, reversible and stereotyped nature of the seizures. The information about the history of migraine in the child's family can lead to the correct diagnosis. In the differential diagnosis of periodic syndromes, inborn errors of metabolism should be considered (such as mitochondrial dysfunction, impaired function of ion channels) and also gastrointestinal disease in abdominal migraine. Due to the lack of specific diagnostic tests, the diagnosis is determined by excluding other causes of the disorder.

Many children feel relieved after lying down in solitude in a quiet and darkened room. Adjunctive therapy during an episode and general support for the child and his family are also important. Prevention and therapy of all forms of migraine attacks include avoiding potential triggering factors, prophylactic pharmacotherapy individually selected and immediate.

Although the clinical symptoms and incidence of childhood periodic symptoms are well documented, a part of cases of the disease is not recognized. Doctors, psychologists and educators should be aware of those benign disorders. Diagnosis is based on a detailed analysis of the type of symptoms reported by parents and the people closest to the child.

BEHAVIORAL AND PSYCHOSOCIAL PROBLEMS

Incapacitation related to the incidence of severe headache combined with aura, nausea and vomiting generates in children difficulties in coping with everyday life and the surrounding environment. Those problems concern especially younger pupils, in final years of primary and post-primary school. In some forms of the disease such as associated migraine, patients present neurological symptoms hampering smooth functioning and meeting the demands of school curriculum.

The authors' own research shows that there are specific behaviours such as a desire to lie down and get isolated from the bright lights, request to turn down music and refrain from smoking. They are self-protection efforts and they are due to an individual's hypersensitivity to light, sounds and smells. Those behaviours arouse surprise, fear, comments and interpretations among his peers and even teachers, and they make them maintain a passive attitude.

Severe migraine attacks contribute to the periodic exclusion from the social functioning. In the absence of sufficient mastery of the negative effects of migraine, they greatly impede the patient's ability to achieve school and personal success. This often leads to low self-esteem and loss of self-confidence.

The connection between migraine and experiencing anxiety is a specific problem in children during the early school period. Among younger children there is the form of migraine with co-occurrence of anxiety attacks. They occur suddenly but temporarily, regardless of the migraine pain. This is most often sleep terror disorder – the child gets up from his sleep and cannot calm down for a long time.

Anxiety is a reaction to external (usually public) or internal stimuli (thoughts, ideas and stimuli from the inside of the body), and its magnitude determines whether it is normal or already pathological. It is the physiological state which mobilizes a person to work towards overcoming the difficulties. When it becomes too intense, it ceases to fulfill its function, disorganizes immediate action. Pathological fear harms the psychological development as it disrupts its basic condition which is the sense of security.

In children, anxiety occurs in three forms: anxiety (undefined fear), specific anxiety (situational) and the one that occurs in the form of anxiety attacks. Realization and materialization of anxiety which lead to its reduction is a defense mechanism. Psychoeducational behavior aiming to cope with anxiety before another attack of migraine is practically based on it.

In early school age, from 7 to 12 years of age, the child begins schooling period, he/she changes their daily routines by moving from the predominant

preschool playgroup activities to learning. Children starting school differ from each other. They represent diverse levels of overall development, adaptability, maturity to undertake systematic duties. Moreover, they sense pressure of being subject to continuous evaluation. Problems associated with migraine headache attacks may overlap school difficulties emerging during that period.

Those difficulties may have a variety of backgrounds. They are partly due to intellectual deficiencies, abnormal physical development, early development stage of the socialization of the child, or emotional immaturity. On the other hand, undiagnosed and untreated migraine can hinder children's adaption to the needs and burdens of school. High frequency, intensity and character of migraine attacks in the child suffering from them, may increase temporarily the conditions of school maladjustment. This gives rise to excessive emotional tension in the patients as well as in the surrounding environment.

School performance of a child with migraine headaches may be reduced by the accompanying high levels of fear of school. That situation is particularly unfortunate, it accumulates the child's fears of school failure and simultaneous fear of public exposure of their disease. This raises the fear of the teacher, peers and the fear of failure in competition. The school phobia with coexisting different types of somatic symptoms such as nausea, vomiting, diarrhea, dizziness, abdominal pain, rapid heartbeat, shortness of breath and fainting can be revealed. It also causes reduced resistance, which predisposes children to increased incidence of infections, or there may be unexplained fevers. Moreover, in the behavior of the child, the fluidity of speech is often disrupted.

MAKING USE OF BIOFEEDBACK

Nestoriuc and Martin (2007) performed meta-analysis on the effectiveness of biofeedback for the treatment of migraine [6]. The presented results of this meta-analysis are based on 86 studies (55 studies met the requirement of randomization) concerning the treatment with this method. It was shown that for all of biofeedback interventions the average effect size was obtained ($d = 0.58$, 95% CI = 0.52, 0.64), which proved to be stable over the average duration of observation (17 months). The greatest effectiveness of this method was demonstrated in relation to the incidence of migraine attacks as well as the patients' subjective feeling of a positive outcome of treatment. It was shown that adequate training in the home environment included in biofeedback raised the effective-

ness of therapy. The meta-analysis is an example of the search of effective methods of analgesic therapy. For younger children, age is a certain natural limit in the application of biofeedback therapy. In older children and adolescents, cognitive-behavioral therapy, visualization and relaxation techniques are becoming increasingly applied. There are also reports that regular exercise can help to reduce the intensity of pain in many patients [7].

THE SIGNIFICANCE OF AID TO CHILDREN SUFFERING FROM MIGRAINE SEIZURES BY PERSONS FROM THE IMMEDIATE SURROUNDINGS

In our study, the role of the school teacher has been made clearly visible. It is this professional group which has a very important psychoeducational function when a pupil who experiences migraine attacks is part of the class. The worst teacher's attitudes which the parents of children suffering from migraine encountered were the following: ignoring the child's problem, accusing the child of laziness and ridiculing him/her in front of their peers. For children suffering from migraine pain particularly important is the fact that a high level of anxiety may be accompanied by insomnia, irritability, difficulty in concentrating and low self-esteem. Parents of those children emphasize that in the case of younger children who need to be assisted to school, they should always be collected after the lessons on time. This gives them a sense of security and thus reduces anxiety. The problem of migraine has a very difficult dimension in the case of children suffering from school phobia. Those children are often timid, self-contained, they easily feel threat, abandonment and they badly respond to disapproval. They may have perfectionist tendencies and achieve positive results, however, they are not self-confident. More than other children they need the assurance of acceptance primarily from their teachers and a peer group. If school phobia is considered, it is sometimes recommended to consult a psychiatrist. If a child with phobia does not get professional help, he/she may develop social development disorder and problems in systematic education. In the case of school phobia, fear does not refer to the learning process itself, but to the entry into the school environment. It is most visible in the case of children who are exposed to further migraine attacks. Such an experience may be further aggravated by the improper atmosphere and the care that accompany the child during an attack of that disease.

Therefore, it is psychoeducation that can be regarded as the right approach for other students, who

should learn to support their suffering peers. Then, in case of turbulent symptoms, they will understand the situation (e.g. the need to lie down in a quiet dark room, vomiting). A balanced and gentle teacher's attitude, which will not intensify the anxiety of a sick child, and which will encourage other students to adopt the empathic attitude is extremely valued.

Children who do not suffer from migraine need to be guided in such a way that they direct their behaviour to strengthen their sick peer's self-esteem, which makes them resistant to various anxiety-producing situations. The teacher should provide the sick child with support, while providing other students with adequate information. In the prevention of school phobia, it is important to allow the child to acquire skills and social experiences, learn self-reliance, learn the consequences of their behavior from early childhood.

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In the case of younger children, it may be appropriate to refer to psychoeducational and psychotherapeutic tales whose purpose is to reduce the fear resulting from negative experience (imitative anxiety). The content of those stories focuses on the problem which the child realises. A psychoeducational tale introduces changes in the widely understood child's behaviour, and at the same time expands the possible repertoire of behaviours. The main character has a similar problem to the one the child is experiencing. In this way the child gains experience through a fairy-tale world, by learning the patterns of proper conduct, which is conducive to learning behaviour in a difficult situation.

A psychotherapeutic tale contains some elements of fairy tales (compensation of needs) and psychoeducational tales (patterns). Such a conduct, supplemented by giving support to a suffering child through psychological mechanisms (identification with the hero, desensitization and knowledge) allows him to build personal resources and cause the reduction of tension.

A psychotherapeutic tale is to provide adequate knowledge of the anxiety-producing situation and to indicate ways of coping with it. On the other hand, a relaxation tale uses visualization to induce relaxation and calmness [8]. Talking to other children with similar problems helps with abreaction of that experience,

which allows him/her to recover lost balance easily. When selecting methods and techniques of helping, age, individual mental capacity, child's perceptual-motor capacity, current health status, mood, music taste, as well as the level of musical ability should be taken into account.

For children suffering from migraine, one of the objectives is to optimize the quality of life, which consists in prevention and overcoming obstacles to self-realization rather than removing the difficulties of life. The activities which include relaxation, which arouse positive emotions and affect the mood positively can play such a role.

However, the younger the child that is struggling with the problem of migraine, the greater the role of adults in the family and educational environment. The level of knowledge and the culture of personal commitment of those key individuals can play a huge role in the prevention of the development and preservation of adverse consequences of recurrent attacks of migraine in those special children.

Moreover, friendly peers understanding the seriousness of the situation and having a basic knowledge of migraine are substantial support for the individuals struggling with severe and often embarrassing ailments. They help them to move safely to a quiet place in the school building, (e.g. to the staffroom or the nurse's office) and, if necessary, they know how to inform their parents about the situation.

SUMMARY

What we call migraine is not just one disorder. It is a diverse group of disorders, with some shared features and some that are distinctly different and involve not only headaches but also a constellation of symptoms of more disorders. In children migraine is associated with problems in multiple areas – from behavioural and emotional adjustment, and social competence to academic achievement that vary in frequency and intensity from child to child [9]. Migraine is strongly associated with allergies and epilepsy [10]. It is necessary to take into consideration that behavioural aggression may result from certain abnormal regions of the brain producing epileptic activity or may be aggravated by the effects of antimigrainic drug therapy [11]. Some of the more common emotional and behavioural difficulties seen in these children include increased anxiety, depression, irritability, hyperactivity, aggression, and in some cases, irrational periods of rage. Early age at onset, psychosocial stressors, and psychiatric comorbidity may be related to a less favorable outcome with most of

the patients medical therapy is the mainstay for migraine. Nevertheless, many patients have medication side effects and occasional seizures. Migraine reduces health-related quality of life more than osteoarthritis or diabetes [12]. Research on specific pathophysiological mechanisms of headache in children and adolescents is sparse, but suggests that these patients show the same mechanisms as adults. Treatment of headache in children and adolescents, however, is different [13]. Therefore, one should realize that treating migraine means treating the whole child, not just the seizures. Multidisciplinary approach allows for the multidirectional proceedings against children experiencing migraine pain and presenting surprising and often incomprehensible emotional behaviour and unrestrained somatic symptoms. Taking a child into an individual, systematic and comprehensive analgesic specialist care is more effective than immediate action. It is essential that a thorough assessment of pain and identification of factors that contribute to the occurrence of migraine attacks is made. Nociceptive diagnosis (evaluation of the type, causes and the course of pain) of migraine attacks allows for the implementation of therapy declining the size of perceived anxiety in the child. In pediatric populations special considerations about migraine care must be made. Children and adolescents respond very well to nondrug treatment, including education, relaxation therapy, physiotherapy, and biofeedback. Evidence indicates that behavioral group treatment is the best therapy [14]. There is a need for better understanding of specific syndromes in children and adolescents, such as the migraine precursor syndromes. Psychoeducation, including both the patient, his family and school environment (teachers, educators, psychologists and also peers) seems to be a necessary complement to the broadly defined treatment of patients with various forms of migraine. Parents alongside with teachers should support and effectively discipline their child, which is pretty much the same whether child has epilepsy or diabetes or no health problems at all. Children and adolescents need a structured educational program including appropriate prophylactic treatment and nondrug therapy.

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