MOTOR CONVERSION DISORDER IN CHILDREN AND ADOLESCENTS: CLINICAL FEATURES AND REHABILITATION TREATMENT

EWA DOMKA[1,2], ELŻBIETA JOPEK[2]

[1]The Child and Adolescent Neurological Rehabilitation Department, at the Clinical Regional Centre for Rehabilitation and Education for Children and Youth, Clinical Hospital No. 2, University of Rzeszów

[2]Department of Rehabilitation, Faculty of Medicine of the University of Rzeszów

e.domka@op.pl

Received: 31.5.2016.
Accepted: 23.10.2016.

Review paper
UDK: 159.946.2-053.2

Summary: *Motor conversion disorder (CD) is a rare but very severe medical problem in children and adolescents. It often causes a risk of long-term disability, social restrictions, educational problems, increased psychiatric morbidity such as anxiety and depression, and the symptoms of pain and fatigue. Proper diagnosis and treatment coupled with strict compliance on the part of the patient and his family during therapy have a major impact on quick recovery. The most effective way of curing motor CD is to introduce simultaneously a multimodal treatment consisting of individual and family psychotherapy, education, physiotherapy procedures based on modified behavioral principles, and pharmacology for co-morbid anxiety and depression disorders. A necessary condition for therapeutic success is to convince the child's parents that the symptoms are psychogenic. This helps to gain their best cooperation. As conversion disorders are usually associated with a significant burden for the child, family, and the health care system, we decided to draw attention in this article to the importance of multimodal rehabilitation procedures in motor CD treatment in order to achieve optimal therapeutic results.*

Key words: *motor conversion disorders, children, adolescents, rehabilitation*

INTRODUCTION

The essential feature of conversion disorder (CD) according to the International Statistical Classification of Diseases and Related Health Problems ICD-10 is "a loss or alteration in physical functioning that suggests a physical disorder but that is actually a direct expression of a psychological conflict or need". CD is diagnosed in patients who present inconsistent neurological symptoms without a well-established organic cause. In the ICD-10 classification, the term *CD* covers all kinds of neurological symptoms that may be observed and is used interchangeably with the term of dissociative disorders (International Statistical Classification of Diseases and Related Health Problems 10th Revision, 2016). According to the DSM-IV, CD refers to sensory and motor problems, while dissociative disorders are related to disturbances of the cognitive processes concerning consciousness and memory. In this taxonomy, CD is categorized as somatoform disorders and separated from the dissociative disorders (Diagnostic and Statistical Manual of Mental Disorders, 4th edition, 2000). In DSM-V, the criteria of diagnosing CD were simplified in order to facilitate it for physicians other than psychiatrists. For this purpose, CD was described under the "umbrella" term *functional neurological symptoms disorder*, the number of diagnostic criteria was reduced, and single leading diagnostic criteria of CD used in ICD-10 were included to bring together those two taxonomies (Diagnostic and Statistical Manual of Mental Disorders, 5-th edition, 2013).

In ancient Egypt and Greece, CD was known as "hysteria". Patients with CD were accused of malingering until the term *conversion* was introduced by Sigmund Freud in the nineteenth century. Freud

strongly believed that physical symptoms which significantly disrupt a patient's life could occur simply because of unconscious mental conflict, especially if it generated anxiety. The symptoms of CD cannot be explained by the presence of any physical or mental illness or as the effect of taking any psychoactive substance. They are usually a defensive reaction generated to deal with obstacles or difficulties in a person's life that exceed their individual psychological and social adaptability skills. Often co-morbid feelings of fear, anxiety, and disrupted self-estimation are unconsciously transferred to real physical symptoms in order to maintain one's mental health stability. These symptoms are neither intentionally produced nor malingered (Bilikiewicz A. et al. 2012, Jarema M. et al. 2011).

The manifestation of CD can be very heterogeneous. Observed disturbances include voluntary motor functions such as limb weakness, paresis, gait, balance and coordination impairments, loss of speech, swallowing difficulty, non-epileptic seizures, and abnormal involuntary movements. Sensory symptoms usually include impaired vision (blindness, diplopia, tunnel vision) and hearing problems (deafness), paraesthesia, and pain sensations. Abrupt temporary disorders such as gaps in memory (amnesia) or sudden leaving a place accompanied by lack of ability to recall the past (fugue) may also be observed (Wolańczyk T, Komender J. 2005, Bilikiewicz A. 2012). The most common manifestations of CD among children are voluntary motor function disturbances (64%), sensory symptoms (24%), pseudo seizures (23 %), and respiratory problems (14%) (Kozlowska K. et al. 2007).

Children are especially vulnerable to conversion because of their immature personality and increased susceptibility to environmental problems causing mental distress. Converting negative emotions into physical symptoms is often their only way to survive cumulative traumatic life experiences such as disrupted family relationships, untreated illness, unresolved school problems, and emotional, sexual, or physical abuse (Kozlowska et al., 2011, Ouss L, Tordjman E., 2014). In several cases, physical injury prior to sensory and motor conversion symptoms have been reported (Stone at al., 2009). Somatic symptoms appear suddenly, shortly after a stressful event and often appear dramatic, suggesting severe neurological disease. Symptoms may last for a long time because the patient often unconsciously benefits from being sick. The primary benefits of conversion symptoms include relief from home and school expectations that are too difficult to meet or from unwanted and unpleasant feelings that accompany recent problems. Secondary benefits include the reduction of parents', teachers', or peers' demands. In a way, children can by means of conversion symptoms avoid facing difficult environmental requirements or "use the disease" to gain more attention from family or peers (Dąbrowska M. 2008, Wolańczyk T, Komender J. 2005).

INCIDENCE

Conversion disorder is a rare childhood condition. Epidemiological data on its prevalence are sparse. According to reports published in the 1990s, it occurs in approximately 10% of pediatric patients with neurological problems and in 1–3% of patients referred to pediatric psychiatrists (Neelkamal S. 2014). A German retrospective study published in 2000 showed a high annual prevalence rate of CD among a large group of teenagers and young adults (about 0.2%) (Lieb R. et al. 2000). According to an Australian study published in 2007, the annual incidence of CD is roughly 2.3–4.2 / 100 000 in specialist pediatric practice, while British epidemiological research published in 2009 showed a total 12-month incidence of CD as 1.8 / 100 000, increasing with children's age (Kozlowska K. et al. 2007, Ani C. et al. 2013). The onset is usually during adolescence, most commonly above the age of 10 years old. Children under the age of five develop symptoms occasionally, and there are even some cases of CD in patients less than 3 years old. There is a higher incidence of CD in girls; it is 2–3 times more frequent than in boys. In addition, children raised in families of low socio-economic status are several times more likely to become CD patients (Kozlowska K. et al. 2007, Ferrara J, Jankovic J. 2008, Schwingenschuh P. et al. 2008).

CLINICAL FEATURES

Motor function disturbances are the most common manifestation of CD in children and adolescents. The most essential form is the unconscious

loss of control over the voluntary movements. Symptoms are often manifested as a lack of function: limb weakness or paresis, astasia-abasia syndrome, less often speech and swallowing disorders. Paresis usually involves the entire limb with identical impact on each muscle group; deep tendon reflexes are normal, and there is typically no muscle atrophy observed even if the symptoms last for a long time. It is difficult to assign symptoms to any known neurological problem, as they are inconsistent. For example, the child presents a paretic gait pattern but at the same time the "paretic" limb function is proper in horizontal position. Astasia and abasia usually occur together, and they are responsible for gait impairment. Astasia means an inability to maintain an upright position when unassisted; abasia refers to a loss of motor coordination when walking. The gait becomes bizarre, not characteristic of any organic leisure. Patients often sway widely, giving the false impression of falling down. This can be accompanied by sudden abnormal flexion of the trunk and buckling of the knees, especially when the child knows that nearby there is a real possibility that the fall will be prevented (e.g., a chair or bed or someone trusted) (Ani C. et al. 2013, Krasnik C. et al. 2013, Stone J. et al. 2002).

Motor conversion disorders in children and adolescents may also be manifested as hyperfunction, such as tremors, tics, dystonic movements, or myoclonus (Ani C. et al. 2013, Thomas M, Jankovic J. 2004, Weterle-Smolińska K. et al. 2010). Tremors are usually present inconstantly and vary in direction, amplitude, and frequency. They worsen when the patient is distressed or tries to make precise movements. In order to counteract tremors of organic origin, it is possible to reduce or modify them by applying distractive factors such as rhythmic tapping of any part of the child's body (Krasnik C. et al. 2013, Stone J. et al. 2002). Dystonic movements often begin in the neck and later on involve other body parts; usually distal parts of limbs are affected (Schwingenschuh P. et al. 2008).

According to the literature, the most common motor conversion symptoms include tremors, dystonia, weakness of the dominant limb, and abnormal gait (Wolańczyk T. et al 2005, Schwingenschuh P. et al. 2008). Most patients have several symptoms simultaneously. Voluntary motor difficulties are often accompanied by sensory deficits (hypo- or hyperalgesia, paresthesia) and rarely by vision impairment (tunnel vision or even blindness) or hearing deficits (Schwingenschuh P. et al. 2008, Leńska-Mieciek M.2013). More than half of children complain of co-morbid chronic pain, and a significant number report various psychiatric problems: anxiety disorders, depression, eating disorders, self-injury readiness, and psychoactive drug abuse (Kozlowska K. et al. 2007, Ani C. et al. 2013). Hospital admission is required in the case of 70% of patients because of the high level of psychological, physical, and social disability (Kozlowska K. et al. 2007). In extreme cases, conversion symptoms can be very severe and lead to a total loss of mobility, speech, and swallowing abilities, making the implementation of nasogastric feeding tube necessary because of the risk of severe malnutrition or even death (Ozsungur B. et al. 2012).

Observing inconsistency and variability of motor CD is crucial for diagnosis. The symptoms increase when attention is directed towards them, so it is very helpful not to make a routine medical examination, but to assess them in a discreet way, especially when the child believes not to be observed. Inconsistency of symptoms includes usually the improvement of paretic limb mobility or gait pattern as well as tremor decrease while the distractive factors are applied, for example during taking clothes on and off or removing things from the bag and replacing them (Schwingenschuh P. et al. 2008). It is also relevant that the distribution of sensory symptoms and the paresis region is non-anatomical; do not match any known neurological disease (Stone J. et al. 2002). In medical observation, it is also important to determine how the child reacts to the restrictions caused by illness. Contrary to what they declare, patients with CD tend to accept limitations easily and they withdraw from school life and extracurricular activities. Children with somatic disease, without emotional problems behave quite the opposite way (Krasnik C. et al. 2013). Proper determining of stressors triggering conversion symptoms is also important for the correct diagnosis and treatment. According to British data based on the observation of 204 children and teenagers, prior antecedent stressors can be identified in as many as 80.8% of CD cases (Ani C. et

al. 2013). The most frequent stress factors found in children include school problems (58%), especially bullying or victimization (23.8%), parental separation (19%), untreated illness among relatives (25%), unresolved conflicts and relational stress (52,5%), and severe grief such as the death of a friend or relative (16.7%) (Pehlivanturk B, Unal F. 2002, Kozlowska K. et al. 2011, Ani C. et al. 2013). In most children, there is also a previous history of unexplained movement disorders. Among their parents, chronic health problems with unclear causes are also often observed (Krasnik C. et al. 2013). It should be noticed that previous excluding of somatic problems is necessary before diagnosing motor CD, as it enables the avoidance of mistakes and delays in the treatment of serious diseases, e.g. brain tumors (Pawełczyk T. et al. 2012). In children and adolescents, however, overdiagnosing seems to be a greater problem than underdiagnosing because parents generally look strictly for organic causes of their child's problems. It is often very difficult to convince them that their child's problems have a psychological background, and what is more, that the causes of the illness's onset should be sought in the child's nearest environment (Leary P.M.2003). Seeking for a long time the somatic origin of CD is common among parents and can delay the proper treatment for as long as several months (Ferrara J, Jankovic J. 2008, Krasnik C. et al. 2013, Leary P.M. 2003). Unfortunately, the longer the conversion symptoms last, the more difficult it is to get the child to full recovery. It should also be noted that mood and anxiety disorders occur at a considerable rate in CD pediatric patients, they worsen the prognosis of health improvement and often persist even after recovery (De Cos Milas A. et al. 2016).

MULTIMODAL REHABILITATION TREATMENT

Non-transient motor conversion disorders in many children may be connected with a serious physical disability and lead to negative psychosocial consequences such as long-term school absences, educational problems, sociable restrictions, and isolation from peers.

As symptoms of motor CD are of psychological origin and physical manifestation, many authors indicate the importance of a multimodal rehabilitation intervention covering all problems that children must face. A key component of this treatment is an application of a holistic approach to the patient based on a cognitive–behavioral model as early as possible. Its purpose is to engage the patient and family in understanding and accepting the diagnosis, which determines good compliance and makes the recovery more possible. It is important to indicate to the patient and family that the medical staff is confident about the unconscious rise in symptoms and does not consider them as malingering. The patient must also be clearly informed that there is no organic background of the conversion symptoms, and a natural history of the disease is favorable for the child and usually ends up with a full recovery within a few months. The patient and family should also be ensured that a systematic medical care follow-up would be available. This reduces the risk of feeling abandoned and makes treatment compliance more effective (Krasnik C. et al. 2013). It is pointed out that hospital admission is often necessary for some patients in order to break with the previous disease behavior, especially if reinforced by overprotective parents, also ceasing school stress and providing a comprehensive medical and psychological support for the family (Heruti R.J. et al. 2005, Kozlowska K. et al. 2012).

Multimodal rehabilitation treatment should consist of focused individual and family psychotherapy together with education, physiotherapy, and pharmacotherapy. All these procedures should be applied simultaneously (Kozlowska K. et al. 2012, Neelkamal S. 2014). Psychotherapy is the essential treatment based on cognitive-behavioral training (CBT) because it uses the teaching of cognitive coping skills in association with the reinforcement of healthy behavior and self-monitoring techniques. Psychological interventions are addressed to a painful life event that might trigger conversion symptoms. Individual sessions should occur at least twice a week. Their main goal is to increase children's capacity to identify and communicate their positive and negative emotional states, help them think about stressful events without so much distress in order to decrease the risk of being CD trigger in future, and teach coping strategies for

better emotional functioning. In addition, it is often necessary to exercise with a child the strategies helping to decrease physiological arousal resulting usually from anxiety (like hyperventilation), which can be done by means of biofeedback programs. Family sessions should occur at least once a week. During family therapy, much focus should be given to the identification of family conflicts and problems that have contributed to the child's symptoms and working out the "role" of the child's symptoms. It is also important to enhance communication and empathy skills between family members, provide support for positive changes in the child's functioning, and educate parents about their home tasks necessary in rehabilitation, such as supervising exercises, talking about feelings, setting limits, etc. (Kozlowska K. et al. 2012).

Progressively introduced physiotherapy based on a modified behavioral approach is the next very important component of multimodal rehabilitation (Kozlowska K. et al. 2012, Krasnik C. et al. 2013, Walkup T. et al. 2008). Physical activity interventions are necessary to avoid chronic disability caused by negative results of mobility loss such as muscle contractures, secondary muscle weakness and atrophy from inactivity, pain, and fixing abnormal gait patterns (Ness D. 2007, Kozlowska K. et al. 2013). Patients often stick firmly in the role of the sick and disabled, without any faith in their movement abilities. Ensuring patient and family about the lack of somatic disease promotes the belief that there are no obstacles to undertaking physical activities. A modified CBT approach is based on positive reinforcement by praising well-done proper movement patterns and making use of them in daily activities. It is crucial for the child to feel satisfied and effective. Generally, children tend to repeat very enthusiastically exercises that are reinforced positively. A behavioral approach also means helping the patient to create new beliefs about mobility by making stronger healthy parts of the body and avoiding focusing on the symptoms and abnormalities while doing exercises (Krasnik C. et al. 2013, Ness D. 2007). Therapy is based on land sessions lasting usually 30 to 60 minutes. They should be matched individually to the child's needs. Most common activities include desensitization, trunk- and limb-strengthening exercises, body-weight resistance and balance training, transfer practice, general cardiovascular training (treadmill or bike), and gait re-education. It is advisable to graduate difficulty of exercises to achieve a smooth transition from low to high levels. Increasing the degree of difficulty of the exercises should be done after mastering the previous, easier stage. Specific strengthening exercises can be applied very carefully as they may draw child's attention to conversion deficit and contribute in this way to its consolidation. Pool sessions can be introduced as an adjunct treatment, as they are usually very attractive for children. In children with motor conversion disorder, it is very important to constantly emphasize the patient's progress, preferably at the end of each exercise session. This helps children to build their feeling of self-confidence and safety and improves also their self-esteem. It is very important to avoid passive modalities such as walking aids (crutches or walker) or a wheelchair because it may consolidate the child in a sick role and discourage them from independent activity (SCHNS Policy, Procedure and Guideline Committee. 2014). In case of co-morbid, musculoskeletal pain, the patient should be reassured that it is an indicative symptom of muscles and tendons adapting to their renewed use and cannot be a reason for avoiding physical activity (Calvert P, Jureidini J. 2003). In addition, routine physical procedures for pain relief can be applied, such as transcutaneous electrical nerve stimulation (TENS), infrared light therapy, or hydrotherapy (Heruti R.J. et al. 2005).

The rehabilitation program should occupy the child for the whole day and take place according to a strictly defined daily schedule adjusted to school and rest hours. Parents are encouraged to stay away and decline from accompanying their children during therapeutic sessions throughout the day in order to improve the children's self-independence (Kozlowska K. et al. 2012, SCHNS Policy, Procedure and Guideline Committee 2014).

It is very difficult to compare the results of rehabilitation treatment in CD pediatric patients because the literature is very sparse and describes mainly retrospective observational studies of individual patients or case series. The only systematic review of its effectiveness includes only twelve studies and

shows that plenty of physical management strategies are applied in the treatment of childish CD including electrotherapy, hydrotherapy, biofeedback, functional exercises, isolated muscles groups exercises (especially in contracture management), strength and circuit training. In most therapeutic programs, cognitive and behavioral adjuncts are introduced, such as reward-based, goal-setting, and point-based approaches (FitzGerald T. et al. 2014). Only single studies provided the structure of the treatment protocol (Chudleigh C. et al. 2013, Kozlowska K. et al. 2013). The lack of a detailed description of rehabilitation strategies and the prevalence of individual management makes it impossible for one to draw conclusions regarding the effectiveness of one treatment strategy over another. Therefore, there is no consensus so far about the rehabilitation treatment of children and adolescents with CD (FitzGerald T. et al. 2014).

In many patients, medication treatment for co-morbid anxiety, depression, or sleep disturbances is necessary. The same considers applying analgesics for pain, especially before physiotherapy sessions or at night before falling asleep. It is also very important to care about anxiety and depression in the children's parents, because their untreated medical problems can trigger CD symptoms in children (Walkup JT et al. 2008, Voon V, Lang AE. 2005).

PROGNOSIS

In the vast majority of patients with motor CD, full recovery usually occurs within a few weeks, even without any therapeutic intervention. This happens in case of transient symptoms and probably is associated with the spontaneous cessation of triggering stressors (SCHNS Policy, Procedure and Guideline Committee 2014, Voon V, Lang AE. 2005, Stonnington CM. et al. 2006). Unfortunately, these disorders are characterized by a significant recurrence rate; this concerns even 25% of patients (Krasnik C. et al. 2013). Symptoms may also transfer to a non-transient disorder that lasts several months or even years. The prognosis for recovery depends on many factors, such as the number and severity of symptoms at the onset, family acceptance of diagnosis, the child's previous health, and the moment when appropriate treatment begins. A very important condition for achieving recovery is also not prolonging the diagnostic process and gaining full cooperation from the family in the therapy.

The available literature shows that the immediate application of multimodal interventions results in the achievement of a favourable outcome: significant improvement was observed in 75–85 % of patients (Ani C. et al. 2013, De Cos Milas A. et al. 2016). Long-term prognosis in children is poorly documented; complete recovery is described in 85% of patients in the four-year follow-up to the study (Pehlivanturk B, Unal F. 2002). Some children, however, have experienced significant disability, prolonged hospitalization, and even unnecessary surgical interventions (Ferrara J, Jankovic J. 2008).

CONCLUSION

Many children and adolescents with motor CD symptoms are at risk of serious, long-lasting physical disability, as well as educational and social problems. Because CD is still a stigmatizing diagnosis, parents tend to unconsciously postpone treatment by overdiagnosing towards somatic medical conditions. Therefore, much effort should be given to early diagnosis and multimodal rehabilitation treatment.

REFERENCES:

Ani C. et al. (2013): Incidence and 12-month outcome of non-transient childhood conversion disorder in the U.K. and Ireland, British Journal of Psychiatry, 202, 413- 418.

American Psychiatric Association (2000): Diagnostic and Statistical Manual of Mental Disorders, 4-th edition, Washington, DC

American Psychiatric Association (2013): Diagnostic and Statistical Manual of Mental Disorders, 5-th edition, Washington, DC

Bilikiewicz A. et al. (2012): Psychiatria, Wrocław: Urban & Partner.

Calvert P, Jureidini J. (2003): Restrained rehabilitation: an approach to children and adolescents with unexplained signs and symptoms, Archives of Disease in Childhood, 88, 399–402.

Chudleigh C. et al. (2013): Managing non-epileptic seizures and psychogenic dystonia in an adolescent girl with preterm brain injury, Harvard Review of Psychiatry, 13; 21, 163–74.

Dąbkowska M. (2008): Trudności diagnostyczne u dzieci z zaburzeniami konwersyjnymi, Pediatria Polska, 83, 3, 281-285.

De Cos Milas A. et al. (2016): Conversion disorder in adolescents: A review and case report. Abstracts of the 24rd European Congress of Psychiatry, European psychiatry, 33, 349-350

Ferrara J, Jankovic J. (2008): Psychogenic movement disorders in children, Movement Disorders 23, 13, 1875-1881.

FitzGerald T. et al. (2014): Is physiotherapy effective in the management of child and adolescent conversion disorder ? A systematic review, Journal of Pediatrics and Child Health, 51, 2, 159-167.

Heruti R.J, et al. (2005): Conversion motor paralysis disorder: overview and rehabilitation model, Spinal Cord, 40, 7, 327-334.

International Statistical Classification of Diseases and Related Health Problems 10th Revision World Health Organization (2016): Mental and behavioral disorders; retrieved 12 May, 2016 from http://apps.who.int/classifications/icd10/browse/2016/en#/F40-F48.

Jarema M, Rabe-Jabłońska J. (2011): Psychiatria. Podręcznik dla studentów medycyny. Warszawa: PZWL.

Kozlowska K. et al. (2012): Multimodal Rehabilitation: A Mind-Body Family-Based Intervention for Children and Adolescents Impaired by Medically Unexplained Symptoms. Part 1: The American Journal of Family Therapy, 40, 5, 399 - 419.

Kozlowska K. et al. (2013): Multimodal Rehabilitation: A Mind-Body Family-Based Intervention for Children and Adolescents Impaired by Medically Unexplained Symptoms. Part 2: Case Studies and Outcomes, The American Journal of Family Therapy, 41, 3, 212-231.

Kozlowska K. et al. (2007): Conversion disorder in Australian pediatric practice. Journal of the American Academy of Child and Adolescent Psychiatry, 46, 1, 68-75.

Kozlowska K. et al. (2011): Patterns of emotional-cognitive functioning in pediatric conversion patients: implications for the conceptualization of conversion disorders, Psychosomatic Medicine, 73, 9, 775-788.

Krasnik C. et al. (2013): Pediatric conversion disorder: VEER in the right direction. Canadian Pediatric Surveillance Program, Resource article: Ontario; retrived 11 May 2016 from http://www.cpsp.cps.ca/surveillance/study-etude/conversion-disorder-in-children-and-youth.

Leary P.M. (2003): Conversion disorder in childhood—diagnosed too late, investigated too much?, Journal of the Royal Society of Medicine, 96, 9, 436–438.

Leńska-Mieciek M. (2013): Psychogenne zaburzenia ruchowe, Postępy Nauk Medycznych, 26, 10, 710-714.

Lieb R. et al. (2000): Somatoform syndromes and disorders in a representative population sample of adolescents and young adults: prevalence, comorbidity and impairments, Acta Psychiatrica Scandinavica, 101, 194-208.

Neelkamal S. (2014): Pediatric conversion disorder: overview, background and nomenclature, diagnostic criteria, Medscape Drugs, Diseases and Procedures; retrieved 12 May, 2016 from http://emedicine.medscape.com/article/917864-overview.

Ness D. (2007): Physical therapy management for conversion disorder: case series, JNPT, 31, 1, 30-39.

Ouss L, Tordjman E. (2014): Conversive disorders among children and adolescents: toward new "complementarist" paradigms?, Clinical Neurophysiology, 44,411-416.

Ozsungur B. et al. (2012): Treatment of a severe conversion disorder in a 10-year-old boy: a case study and overview, Turkish Journal of Pediatrics,54, 4, 413- 418.

Pawełczyk T. et al. (2012): Zanim rozpoznasz u pacjenta zaburzenie konwersyjne, zbadaj dokładnie jego stan somatyczny i neurologiczny. Opis przypadku, Psychiatria Polska, 46, 3, 483-492.

Pehlivanturk B, Unal F. (2002): Conversion disorder in children and adolescents. A four year follow up study, Journal of Psychosomatic Research, 52,4,187-191.

SCHNS Policy, Procedure and Guideline Committee (2014): Pediatric conversion disorder: physiotherapy management CHW , practice guideline, Westmead: The Children's Hospital.

Schwingenschuh P. et al. (2008): Psychogenic movement disorders in children: a report of 15 cases and a review of the literature, Movment Disorders, 23, 13, 1882-1888.

Stone J. et al. (2009): The role of physical injury in motor and sensory conversion symptoms: a systematic and narrative review, Journal of Psychosomatic Research, 66, 5, 383-390.

Stone J, Zeman A, Sharpe M. (2002): Functional weakness and sensory disturbance, J Neurol Neurosurgery Psychiatry, 73, 3, 241-245.

Stonnington CM,Barry JJ, Fisher RS. (2006): Conversion disorder. American Journal of Psychiatry, 163, 9, 1510-1517.

Thomas M, Jankovic J. (2004): Psychogenic movement disorders: diagnosis and management, CNS Drugs, 18, 7, 437-452.

Walkup JT. et al.(2008): Cognitive behavioral therapy, sertraline, or a combination in childhood anxiety, New England Journal of Medicine, 359, 26, 2753- 2766.

Voon V, Lang AE. (2005): Antidepressant treatment outcomes of psychogenic movement disorder, Journal of Clinical Psychiatry, 66, 12, 1529-1534.

Weterle-Smolińska K. et al. (2010): Problem zaburzeń konwersyjnych u dzieci i młodzieży – przegląd piśmiennictwa poparty opisami przypadków, Klinika Pediatryczna, 18, 4, 487- 493.

Wolańczyk T, Komender J. (2005): Zaburzenia emocjonalne i behawioralne u dzieci. Warszawa: PZWL.

MOTORIČKI KONVERZIVNI POREMEĆAJ KOD DJECE I ADOLESCENATA: KLINIČKA OBILJEŽJA I REHABILITACIJSKI TRETMAN

Sažetak: *Motorički konverzivni poremećaj rijedak je ali ozbiljan medicinski problem u djece i adolescenata. On često predstavlja rizik za nastanak dugotrajnih teškoća, socijalnih ograničenja, teškoća u obrazovanju, poremećaja poput anksioznosti i depresije te također simptoma poput bolova i umora. Ispravna dijagnoza i tretman te aktivna uključenost pacijenta i njegove obitelji značajno utječu na brzinu oporavka. Najučinkovitiji način liječenja ovog poremećaja sastoji se u multimodalnom tretmanu koji uključuje individualnu i obiteljsku psihoterapiju, edukaciju, fizioterapijske postupke bazirane na modificiranim bihevioralnim načelima te korištenje lijekova za liječenje anskioznosti i depresije. Nužan preduvjet uspješne terapije jest uvjeriti roditelje da su djetetovi simptomi psihogeni, što najviše pomaže u njihovom pridobivanju na suradnju. Budući da konverzivni poremećaji predstavljaju značajno opterećenje za dijete, obitelj i sustav zdravstvene skrbi, ovim radom željeli smo skrenuti pozornost na važnost multimodalnih rehabilitacijskih postupaka u tretmanu motoričkog konverzivnog poremećaja, kako bi se se postigli optimalni rezultati u terapiji.*

Ključne riječi: *motorički konverzivni poemećaj, djeca, adolescenti, rehabilitacija*