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EFFECTS OF NEUROPSYCHOLOGICAL THERAPY IN A SCHOOL-AGED CHILD WITH AUTOIMMUNE DRUG-RESISTANT EPILEPSY: A CASE STUDY

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SUMMARY

Background:

The aim of this article is to present the effects of the neuropsychological therapy of a school-aged child diagnosed with autoimmune drug-resistant epilepsy. Material and methods: A battery of neuropsychological and clinical tests, an interview with the patient's mother, observational data, and the results of previous psychological and medical tests were used to provide a neuropsychological diagnosis of an 8-year-old girl. The diagnosis was performed twice: before and after a year of neuropsychological therapy. The therapy program was based on the assumptions of microgenetic symptom theory (Brown & Pąchalska 2003), which aims at improving intellectual, visuospatial, and executive functions, as well as improving the emotional – social processes.

Case study:

The patient's intellectual functions significantly improved. In 2017, the quotient of fluid intelligence ranged from light intellectual disability to lower than average. Currently, the IQ ranges from lower than average to average. Improvements also took place in the following areas: motor and constructional praxis, direct auditory memory capacity, visuomotor coordination, spatial orientation, visual searching, and some executive functions. Other cognitive processes did not change, while an increase in the difficulty in switching attention from one task to another was observed.

Conclusions:

Neuropsychological therapy conducted in accordance with the theoretical assumptions of neuropsychology proved effective. We consider that neuropsychological therapy should be continued while new goals are established.

Key words: child epilepsy, cognitive functions, microgenetic symptom theory

BACKGROUND

There are only a few studies into the clinical image of autoimmune drug-resistant epilepsy. Those that do exist (Suleiman, Brilot, Lang, Vincent & Dale 2013; Suleiman & Dale 2015) indicate that NSAbs antibodies occur in serum and cerebrospinal fluid and that there is a positive reaction to immunotherapy. Epileptic seizures can coexist with the course of childhood autoimmune diseases and in autoimmune epileptic syndromes, such as Rasmussen encephalopathy (Bien et al. 2005), and West (Guzzetta 2006), Lennox-Gastaut (Covanis 2012, Vignoli et al. 2017), and Landau-Kleffner (Covanis 2012) syndromes. Childhood drug-resistant epilepsy may arise due to malformations of the cerebral cortex and can lead to the frequent occurrence of epileptic seizures before treatment and early disease onset in about the first year of life (Kozera-Kępnia, Jastrzębski & Klimek 2013; Kurkowska-Jastrzębska, Pilip, Niedzielska & Barańska-Gieruszczak 2005). Due to the heterogeneous medical image of autoimmune epilepsy and the unharmonious psychomotor, emotional, and social development of the child (Carreño, Donaire & Sánchez-Carpintero 2008; Patterson, Baram & Shinnar 2014), specific therapeutic and medical approaches are required.

The cognitive and emotional symptoms are associated with central nervous system dysfunctions of specific brain structures. Structural and functional changes in the frontal lobes result in impairment of executive functions (O'Muircheartaigh & Richardson, 2012; Widjaja, Zamyadi, Raybaud, Snead & Smith 2013) and verbal working memory (Lopes et al. 2013), while changes in the temporal lobes point to auditory and verbal deficits (Hermann et al. 2002). Children with this type of epilepsy may also have psychiatric disorders resulting from damage to the parietal, occipital, or subcortical structures (Ishii et al. 2006; Pużyński & Wciórka 1998; Ristić, Alexopoulos, So, Wong & Najm, 2012).

Due to the wide and varied spectrum of cognitive, emotional, and social symptoms in the course of childhood epilepsy, we examined the options for improving disturbed functions and strengthening the preserved neurocognitive processes from the perspective of a well-established theory. The microgenetic theory of symptoms (Brown & Pąchalska 2003) emphasizes the role of the process that form mental disorders (microgenesis) and attempts to "capture" the variability and evolution of the symptom, which is understood as a segment of normal behavior.

According to microgenetic theory, damage to the brain delays the full and correct development of processes, which terminate prematurely in the form of a symptom (Pąchalska 2008). It is assumed that, in the brain, there is a continuous and repeated process of moving one activity into another; the treatment of individual cognitive and emotional processes as separate is therefore burdened with significant errors. As with phylogenesis and ontogenesis, mental development proceeds from the general to the specific, and from unity to diversity. This should be taken into account in determining the course of therapy (ibidem). When planning a therapy program, it is also necessary to refer to knowledge of brain plasticity mechanisms: morphogenesis, parcelation (the formation of patterns of mental

processes), heterochrony (differing rates in the development of mental structures and processes), and substitution (Borkowska 2012; Brown & Pąchalska 2003) for internal structural–functional reorganization and cognitive–behavioral compensation.

The aim of neuropsychological therapy is to improve the disturbed neurocognitive, emotional, and social functions to the extent that the patient becomes more independent and effective in action (Herzyk 2015). In child development, it is important to acquire skills to effectively cope with new and difficult situations, which requires solving complex problems. Due to the disturbances in cognitive functioning and difficulties in emotional control and establishing social contacts, the basic principle in the process of neuropsychological therapy is to obtain a full understanding of the child: his or her negative feelings (frustration, guilt, inferiority), positive feelings (awareness of their own abilities and capabilities), and means of understanding and interpreting daily reality (Prigatano 2009). The microgenetic approach of Jason Brown involves 1) the individualized selection of therapeutic techniques; 2) the formation of patient–psychologist relations; 3) a strategic approach; and 4) a heuristic approach to the diagnostic and therapeutic process, as well as many methods of rehabilitation, included compensatory, corrective, and holistic (Pąchalska 2007, 2008).

Based on data from the subject literature, knowledge of the mechanisms of central nervous system plasticity, and therapeutic strategies, a general model of the child's neuropsychological therapy program was designed. The aim of the therapy was to improve the cognitive, and emotional-social functioning of the girl. In terms of cognitive processes, the focus was primarily on executive and intellectual functions, and to a lesser extent on visuospatial ones. The model is presented in Fig. 1.

In terms of this model, the course of annual neuropsychological therapy was based on *bottom-up* processes: from potential to current and from the general

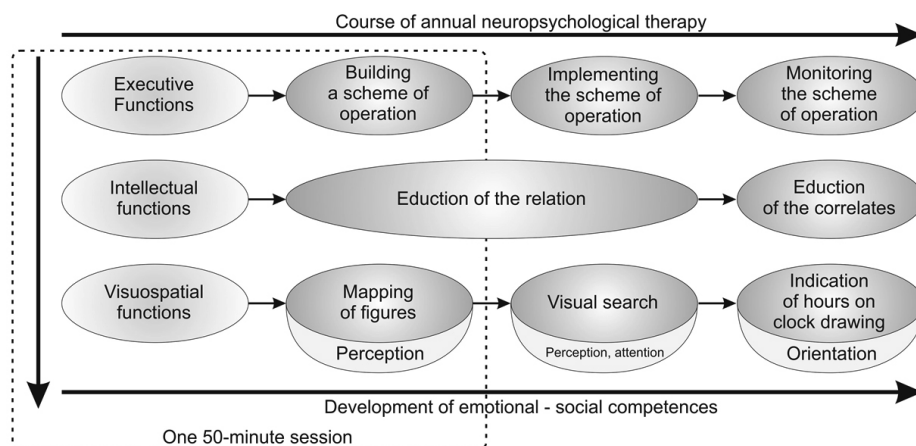


Fig. 1. Model for improving mental functions by using specific strategies
Source: own elaboration

framework of the task to the achievement of more specialized skills. Referring to the mechanisms of mental development, this course of therapy was consistent with the development of the species (phylogenesis), the individual (ontogenesis), and the neuronal level (microgenesis). This is important from the point of brain plasticity, because the effects of therapy should be seen not only in terms of psychological and behavioral reorganization (plasticity), but also in the structure and function of the brain. On the other hand, a single therapeutic session of 50 minutes usually took a *top-down* strategy: activation of superior mental functions to improve lower processes, which on the neuroanatomical level can be interpreted as a transition from tertiary areas to primary brain areas. This strategy, applied systematically over a long period led to an improvement in the executive functions responsible for effective and orderly word with the child (Vandenbroucke, Spilt, Verschueren, Piccinin & Baeyens 2017).

Executive dysfunctions, if significant, must be taken into account in therapy (Jodzio 2008). In the case of the child examined here, it was concluded that further attention should take into account the intellectual functions and other deficits, such as visuospatial deficits. In line with the model shown in Figure 1, modifications were employed during many therapeutic sessions by introducing a range of therapeutic approaches: cognitive training, compensation methods, and holistic strategies (Pačhalska 2008). This model is further described in the section on the neuropsychological therapy program.

CASE STUDY

The girl attended the Psychological and Pedagogical Clinic so that her general functioning could be assessed and in order to receive recommendations for further therapy. The girl's mother described the child's cognitive impairments and the accompanying emotional and social difficulties, most likely resulting from epilepsy with an unknown etiology (suspected autoimmune epilepsy). The scale of the difficulties made it impossible for the girl to efficiently and independently learn at school.

Medical documentation showed that, in 2011, the child was diagnosed with epilepsy of an unknown etiology with polymorphic seizures (myoclonic, atypical, unconscious, tonic, tonic-clonic, and psychomotor). The first epileptic seizures appeared around the age of 2 and occurred every day, most often at night. In 2014, autoimmune drug-resistant epilepsy was diagnosed during a period of remission. An autoimmune infection is currently suspected. There have been no seizures for about 5.5 years. According to the interview, the pharmacotherapy used (Sabril, Topamax, and Orifiril Long) did not bring the expected effects. A slight improvement was seen with Keppra (2 × 250 mg), which was gradually discontinued after 4 months.

Based on the data from the interview and the psychological and pedagogical opinions, it appears that psychomotor, emotional, and social development did not proceed harmoniously. From the age of 4, there has been a significant dete-

rioration in cognitive functioning: disturbances in the dynamics of thinking, executive functions, auditory memory processes, and attention concentration. In terms of emotional-social functioning, strong attachment to the mother was observed, as were emotional lability, difficulties in postponing gratification, attacks of anger and hysteria, hypersensitivity, and a strong sense of shame and inferiority. In the preschool and school period (until 8 years of age), the girl underwent various forms of therapy: medical, pedagogical, neurophysiological (including biofeedback), and psychological and medical consultations.

Based on a diagnostic study carried out at the Psychological and Pedagogical Clinic in 2017, it was observed that the level of intellectual functions ranged from light intellectual disabilities to lower than average. Due to the significant difference between the results involving visuospatial and abstract abilities, the intellectual resources and deficits of the child were described. Based on the analysis of the results of other clinical trials and neuropsychological tests, executive dysfunctions in planning and fluent switching from task to task (difficulties in inhibiting the previously learned reaction) and efficient selection of task solution strategies were found. The results did not indicate the presence of attention deficits in the form of concentration, the general ability to perceive and divisibility, while a reduction was observed in attention-switching and active searching (both attention components being related to executive functions). These results suggest a non-harmonious profile of short-term memory processes: direct visual memory was preserved (despite the weakened visuospatial organization), while direct auditory memory and verbal operational memory were reduced. Significant difficulties were also observed in phonemic hearing and phonological awareness.

Objectives of the neuropsychological therapy program

The neuropsychological therapy was intended to deal with: 1) the child's perception of her resources and difficulties; 2) more effective means of coping with cognitive and emotional difficulties; 3) strengthening the child's strengths, while minimizing her deficits; 4) allowing the child to gain several perspectives on problems and to find optimal solutions; 5) strengthening her sense of self-efficacy and monitoring the course of work; 6) improving cognitive, emotional- social functioning. Based on the results of the diagnostic research, the neuropsychological therapy program had four objectives:

- Improving executive functions
- Strengthening intellectual processes
- Improving visuospatial functions
- Developing emotional-social competences

The course of neuropsychological therapy

Neuropsychological therapy lasted from March 2017 to December 2018 and took the form of two 50-minute visits during the week (including holiday periods). The therapy was carried out in accordance with the objectives. First came attempts to improve executive and intellectual functions. Along with the enhance-

ment of these processes, visual search methods were carried out (Pačalska 2008), modified by the psychologist to suit the needs of the child. After about six months of therapy, the focus switched to strengthening visuospatial orientation and orientation in time. The optimal development of the emotional-motivational-social sphere was guided for the whole year. To a lesser extent, the auditory-verbal functions were improved. Currently, the goals of the therapy have been modified in accordance with the new diagnostic results and the need to focus on the child's further deficits and resources. The full course of therapy is presented below.

Improving executive functions

According to the stepwise approach to the therapy of executive functions (Pačalska 2008), three main stages were employed: 1) building a scheme of operation; 2) implementing a scheme of operation; 3) monitoring the operation scheme. The stages were carried out on the basis of mathematical text tasks (for about 4 months), analysis of sequences of numbers, imagistic stories, mapping of complex figures, and the patient's statements on any topic. Each time, the child was made aware of the aim of the task; at the beginning, this was explained, but later the patient was encouraged to formulate her own goals.

In the first step (building a scheme of operation), the psychologist gave guidelines for solving the task, guiding the child's work and orienting her reactions. Initially, the difficulty of the tasks (and schemes) was kept low. With time, modifications were introduced to known schemes and the degree of difficulty was increased. The second step (implementation of the operating scheme) was based on tasks performed by the patient in accordance with a scheme proposed by the psychologist, or worked out together. The third stage in improving executive functions (monitoring of the operation scheme) involved interrupting erroneous actions made by the child and making a conscious correction and evaluation of the task (when a task was being performed incorrectly, initially the child was interrupted and the error pointed out; after some time, she was only signaled, guided, and helped in the task, and was led to an independent assessment and explanation).

This procedure was repeated many times and modified on a regular basis for the first five months. The greatest progress was observed in performing tasks related to sequences of numbers (modified by the psychologist), including the procedure of counting in memory (in order to expand the capacity of verbal working memory)

Strengthening intellectual processes

Due to the significant difference between the results of two parts of the CFT-1-R test, the intellectual resources and deficits in the child were described. Referring to the two-factor theory of intelligence by Charles Spearman (1927), intellectual resources are related to education of the relation (Koc-Jonuchta 2013)—that is, the ability to recognize symbols and to properly allocate them to the pictures under time pressure, to quickly perceive and find the key element, perceptual reasoning, planning, and classifying simple patterns in nonverbal ma-

terial. In the therapeutic process, the intellectual functions associated with the education of the relation were strengthened by appropriately selecting cognitive exercises. On the other hand, intellectual deficits were related to the education of the correlates (Spearman 1927). Hence, difficulties also affected efficiency in inference, capture, recognition, and understanding of rules on the figural material. In the neuropsychological program, the focus was solely on the analysis of inference processes based on tasks that improve other cognitive functions.

Improving visuospatial functions

Although the patient did not display any disturbances in her perception of objects, figures, faces, or colors, she had significant difficulties in construction praxis (with right-hand predominance) and visuospatial orientation. Elements of visual search methods were used (including counting dots and strips arranged in various ways, and finding patterns hidden on a board), as were techniques for organizing perception (e.g., mapping known and unknown figures with advanced movement of the finger along their edges). The methods for improving visuospatial functions included the training of executive functions related to visuospatial organization in order to eliminate construction praxis disorders. After six months of training, the therapy was expanded to encompass visuoconstructive skills and time orientation based on the clock drawing test (Pąchalska 2008).

Developing emotional – social competences

Emotional-social competences include the skill of engaging in positive reactions with others and effectively regulating emotions to achieve a goal (Squires, Bricker & Twombly 2003). As part of the neuropsychological therapy, the focus was on normative processes (readiness to cooperate with children, empathy, compliance with norms, signaling her own needs to herself, receiving feedback) and reduced processes (emotional lability, low assertiveness) (Kamza 2014).

Each therapeutic visit began with a conversation of about 20 minutes regarding school and home situations which the girl wanted to share. The conversation was enriched with drawings (pictures of mother, family, friends, and teachers). The conversation was conducted in accordance with the standards of psychological assistance. Depending on the problems of emotional-social functioning that emerged, difficult situations were discussed (more time was spent on this than previously). After the conversation, the next stage involved cognitive exercises enriched with the training, including naming and recognizing complex emotions (presented in pictures, both with and without a social context), assertiveness training, and understanding social situations.

Results of neuropsychological therapy

The aim of the neuropsychological therapy was to improve the cognitive and emotional-social functioning of the child. Due to her broad spectrum of cognitive difficulties, the focus was on two main functions – the executive and the intellectual. Unexpected effects occurred in visuospatial functioning; these improved,

though to a lesser extent, in the first six months of therapy. After a year of therapy, the diagnostic tests were performed again. The results are shown in Table 1.

The results show a significant improvement in fluid intelligence, especially for intellectual functions based on perceptual and perceptive reasoning (education of the relation). At the beginning of 2017, the quotient of liquid intelligence ranged from light intellectual disability to below average. Currently, the IQ is below average to average. There is still a statistically significant difference between the two aspects of intellectual functions – education of the relation (part I) and education of the correlates (part II). With crystallized intelligence, a significant change was noticeable in comparison with the first neuropsychological study. The ability

Table 1. Diagnostic test results

Method of neuropsychological diagnosis	First diagnosis (2017)	Second diagnosis (2018)
The Culture Fair Intelligence Test – version 1 (CFT 1-R) by Raymond B. Cattell (standardized scores)		
Full IQ	74 <65; 82>	88 <82; 97>
Part I	7 <5; 9>	12 <10; 15>
Part II	4 <3; 5>	4 <4; 5>
WS/ZF-R. Rudolf Weiss Test of Words and Test of Numbers (Part A) (standardized scores)		
Test of Words	5 <3; 6>	2 <1; 4>
Test of Numbers	7 <5; 8>	7 <5; 8>
Letter–Number Sequencing subtest of WISC-R (standardized scores)		
Directly	3	3
Backward	2	2
Labyrinths – clinical trials		
WISC-R subtest	4 (slightly below average)	6 (average)
WCST. Wisconsin Card Sorting Test		
Number of passed categories	2	2
Total errors	75	74
Perseveration responses	56	76
Perseverational errors	44	61
Nonperseverational errors	31	13
Learning process	-72,83	-8,13
Number of tests carried out before the first category was passed	0	74
Failure in maintaining attention	1	0
TMT. Trail Making Test		
TMT A	110 s. (+1 error)	52s. (+ 0 errors)
TMT B	180 s. (+15 errors)	116 s. (+5 errors)
Verbal Fluency Test		
Semantic fluency	18	15
Phonemic fluency	11 (+ 5 perseverance errors)	5 (+2 distortions)
Rey–Osterrieth Complex Figure		
Reproduction	8/18 (VI type)	13/18 (II type)
Recall	7/18 (VI type)	9/18 (II type)
CDT. Clock Drawing Test		
Location of digits	incorrect	slightly incorrect
Indication of hours	incorrect	correct

Table 1(cont.). Diagnostic test results

Frostig Developmental Test of Visual Perception		
Task I	13/16	14/16
Task V	3/8	6/8
BVRT. Benton Visual Retention Test (C Version, A Method)		
Reproductions	4/10 (average)	3/10 (average)
Errors	16/13 (slightly below average)	15/11–12 (slightly below average)
RAVLT. The Rey Auditory Verbal Learning Test		
List of A	4/7/5/6/4	4/7/6/5/4
List of B	0 (+7 intrusions)	6
After distraction	2 (+1 intrusion)	11
After 30 min.	3 (+ 1 intrusion)	8
D2. Attention Assessment Test of Rolf Brickenkamp		
Overall result	332	312
Percentage of errors	15.4	31.4
General ability to perceive	281	214
Distribution of errors	6/22/23	29/36/33

to find relationships between numbers (or estimates of numerical material) remained average, while the use of passive vocabulary was reduced.

For the executive function, an improvement can be observed in initiation (readiness to act), planning, and acting in accordance with the objective, but a deterioration occurred in switching attention and quick-changing strategies. The results of the second WCST test have a higher total numbers of errors and types of error (perseverative errors dominate), and better results in the process of learning (task monitoring). No change was seen in the number of categories included. In turn, the higher TMT results may result from improved skills of perceptual searching, inhibition of the previously learned reaction, and visuomotor coordination. Similarly, the correct reproduction and recall of the Rey–Osterrieth Complex Figure may result from improvements in the visual analysis/synthesis, as well as in the organization/monitoring process. However, the results of the phonemic fluency test indicate a decrease in the ability to quickly generate words.

The results of the second round of neuropsychological tests indicate an improvement in visuospatial functions in terms of orientation, visual analysis/synthesis, visuomotor coordination, and constructional praxis. The first diagnostic test suggested the occurrence of right-sided constructional apraxia—an executive defect with the preserved visual perception of objects and figures (Walsh & Darby 2005). Currently, the girl more accurately replicates simple and complex figures, does not lift her pencil from the paper when trying to form continuous lines, and properly uses jigsaw pieces to form the whole image.

Due to her wide spectrum of cognitive difficulties and the need to strengthen her emotional and social processes, the improvement of other functions will be dealt with only in the later course of therapy. There are thus no current significant changes in visual and auditory direct memory, or in verbal operating memory.

However, better efficiency can be observed in extracting words from the short-term or long-term memory (perhaps as a result of the improvement in these functions over the last four months). Regarding the processes of attention, while the speed of the task performed is still at the optimum level and an increase in the even rate of work has been seen, there has also been a decrease in the quality of implementation (greater number of errors).

Both rounds of neuropsychological tests included a set of clinical trials by Włodzimierz Łucki. An improvement was seen in the ability to classify, to dissociate sound from meaning, in visuospatial orientation, and in kinetic praxis of the right and left hands. Other skills (reading, repetition, writing, thinking, counting, memory, perception, pose, and spatial praxis) remained at the same level (lowered or optimal) and require further therapeutic work. An EEG examination showed a change in the functional activity of the central nervous system: in 2016, the changes were located in the anterior temporal region and the frontal-central region of the right side; in 2018, there were numerous paroxysmal changes located in the frontal-temporal-central region of the right side, propagating sometimes to the anterior area of the left side. EEG examinations were carried out at the same center in Warsaw, using the same equipment and under similar conditions (while awake, drowsy, and in spontaneous sleep; recording time about 45 minutes, 1-2-3-(4) NREM sleep stages).

Gradual progress in emotional-social functioning is observable at present, but the interview data shows that the child may have signs of frontal lobe syndrome. At this time, therapy of these functions requires more intense strategies.

DISCUSSION

Referring to the model in Figure 1, the results of neuropsychological tests, and the EEG examination, we can infer that neural reorganization has occurred in the temporal-frontal region; however, the apparent relationship between the results of the EEG and the neuropsychological data should be treated with caution. Researchers (Anderson, Spencer-Smith & Wood, 2011) have suggested that the mechanisms of neural plasticity (both neuroanatomical and neurophysiological) and functional plasticity (behavioral, neuropsychological) may initially develop independently. In accordance with the aims of this neuropsychological program, functional plasticity (Johnston 2004) in the child probably occurred as a result of improved mental functioning, including in executive, intellectual, visuospatial, emotional-social functioning. Although not all components of the executive functions described by Muriel D. Lezak (1995) underwent improvement in the course of the therapeutic process, the data from interviews with parents and teachers suggest a significant improvement in executive functions in the child's everyday life.

The neuropsychological therapy program used here was based on the patient–psychologist relationship (Cierpiąłkowska & Czabała 2016) and traditional therapeutic methods. Referring to the principles of neuropsychological therapy in the microgenetic approach, described in the introduction, 1) the methods and

techniques were adapted to the child's condition and were consistent with the results of the first round of diagnostic tests; 2) the therapeutic process was based on the patient – psychologist relationship; 3) due to the significantly reduced executive and intellectual functions of the child, a strategic approach was gradually introduced after about three months of therapy; and 4) the heuristic approach to the diagnostic–therapeutic process was used, in accordance with the model presented in Figure 1. Other researchers (Kropotov 2009; Pąchalska et al. 2012) have also suggested enriching classical neuropsychological therapy with neurofeedback methods. In their research, functions such as the executive, intellectual, visual analysis, synthesis, attention and, to a lesser extent, direct auditory memory showed improvement.

Data from the subject literature point to the occurrence of intellectual, cognitive and linguistic disorders in children with central-temporal or frontal epilepsy, and transient cognitive-behavioral difficulties in children with Roland epilepsy (Camfield & Camfield 2017). Research results (Zipper, Baine, Genizi, Maoz, Levy & Levy 2017) regarding the diagnosis and treatment of a five-year-old boy with epileptic seizures suggest that, as a result of successful therapy and educational and therapeutic interactions, the boy's level of socioemotional competences improved. Studies of children who have undergone hemispherectomy also indicate a decrease in seizures and improvements in the quality of life, with no changes in intellectual functioning (Dwivedi et al. 2017) or improvement in direct auditory memory (Law, Benifla, Rutka & Smith 2017). Solutions that may improve cognitive impairment in children with epilepsy include special education (Berg et al. 2005), cognitive function training and learning (Deonna, Zesiger, Davidoff, Maeder, Mayor & Roulet 2000), cognitive function rehabilitation (Kerr et al. 2011), and neurotherapy using neurofeedback (Pąchalska et al. 2012; Serman & Egner 2006).

There have been very few studies on classical neuropsychological therapy or rehabilitation programs aimed at improving cognitive, emotional, and social functions in children diagnosed with epilepsy (Kwan et al. 2010). Neurorehabilitation based on the knowledge of traditional and modern neuropsychology seems to rarely be used, and psychological interventions most often concern other areas of functioning (Michaelis et al. 2016). Selective improvement of cognitive functions has been observed following pharmacotherapy (Adams et al. 2017; Anderson, Spencer-Smith & Wood 2011; Marston, Besag, Binnie & Fowler 1993) and functional hemispherectomies (Cukiert et al. 2009; Schramm, Delev, Wagner, Elger & von Lehe 2012). Recent research points to the legitimacy of using these methods in children with drug-resistant epilepsy (Bajaj et al. 2018; Dwivedi et al. 2017; Radhakrishnan et al. 2018).

As part of neuropsychological therapy, along with the improvement and strengthening of cognitive functions in the child examined here, care was taken to optimally develop emotional and social competences. Data from the subject literature point to the use of cognitive – behavioral therapy in situations of emotional disorders, alongside pharmacotherapy (Blocher, Fujikawa, Sung, Jackson & Jones 2013; Kerr et al. 2011), in order to activate new coping strategies (Batista,

Meštrović, Vekić, Malenica, Kukuruzović & Begovac 2015). Although neuropsychologists (Herzyk 2015; Pačalska 2008; Prigatano 2009) have emphasized the need to improve emotional-social processes throughout neuropsychological therapy, neuropsychotherapy (Herzyk 2016; Pačalska, 2007) is at present applied to a very marginal extent, or not at all. The results can be interpreted in accordance with the assumptions of formation and resolution of symptoms presented in the microgenetic theory (Pačalska, Góral-Pórola, Mueller, Kropotov 2017); Pačalska, MacQueen & Cielebak 2018). Due to the risk of reduced psychosocial functioning in children with various forms of epilepsy, researchers point to the need to include quality of life predictors in the diagnosis, treatment, and therapy – namely, the intellectual potential (Nolan et al. 2003) and executive functions (Sherman, Slick & Eyrl 2006), and to include neuropsychological therapy in interdisciplinary treatment (Kerr et al. 2011). This confirms the legitimacy of neuropsychological therapy and its aims as used in the case study described here.

CONCLUSIONS

1. Executive and intellectual dysfunctions in the child are among the key difficulties that have arisen or escalated as a result of autoimmune drug-resistant epilepsy.
2. The aim of neuropsychological therapy was to improve disturbed mental functions resulting from the dysfunction of the central nervous system, in order to equip the patient with the ability to effectively cope with new and difficult situations, as well as situations that require solving complex problems (Herzyk 2015).
3. The effects of neuropsychological therapy brought improvement in the development of intellectual functions, as well as the learning process, volition, planning, visuospatial functions, kinetic praxis of both hands, and extracting verbal information from the auditory memory. However, it is worth noting that there was a reduction in phonemic fluency and in attention switching. No changes in functioning were observed for other cognitive processes.

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