EVALUATION OF MOTOR AND SENSORY FUNCTIONS AND PSYCHOLOGICAL PROPERTIES IN CHILDREN WITH HEMIPARETIC **CEREBRAL PALSY BETWEEN THE AGES OF 6 AND 16 YEARS**

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INTRODUCTION

Cerebral palsy (CP) describes a group of permanent disorders of movement and posture, causing activity limitation, that are attributed to non-progressive disturbances that occurred in the developing fetal or immature brain. Hemiparetic/ hemiplegic cerebral palsy (hCP) is one of the most common subtypes of CP that one half of the body (hemibody) is affected. In patients with hCP, upper limb is usually more affected than the lower limb. The motor disorders of CP are often accompanied by disturbances of sensation, perception, cognition, communication, and behavior, by epilepsy, and by secondary musculoskeletal problems.

OBJECTIVES

In this study, we aimed to evaluate the relationship between gross and fine motor skills of both hands, children's hand experience, sense of two-point discrimination and psychological characteristics of the patients with hCP between the ages of 6 and 16.

19 patients with hCP aged between 6 and 16 years without intellectual disability and 20 typically developing children (TDC) as a control group were prospectively evaluated. Box and Block Test (BBT), 9-Hole Peg Test (9-HPT), Two-point Discrimination Test (2PDT), Strengths and Difficulties Questionnaire (SDQ) parental version and Children's Hand-use Experience Questionnaire 2.0 (CHEQ) parental version were used. Gross Motor Function Classification System (GMFCS) and Manual Skills Classification System (MACS) levels were evaluated.

It was observed that gross (p=0.002) and fine (p=0.013) motor performances in dominant hand of children with hCP lag behind those of TDC. CHEQ scores indicate that non-dominant hand gross motor skills correlate with the experience children with hCP have during activities, where usually two hands are needed. Non-dominant hand gross hand skills are correlated with the use of hand (r = 0.570), time spent for the activity (r = -0.509) and boredom caused by loss of function (r = -0.510). Rate of the patients with hCP above the "close the average" score in terms of emotional problems, conduct problems, hyperactivity and inattention, peer problems, impact, and total difficulties was found as 31.6%, 15.8%, 26.6%, 47.4%, 15.8%, %26.3, respectively. Unlike TDC, emotional symptoms (p=0.001) and total difficulties scores (p=0.026) increase significantly in adolescence, compared to childhood. In children with hCP, along with the fingers of the non-dominant hand, index finger of the dominant hand also tends to have impaired sense of two-point discrimination and correlates with gross motor skills of both hands (p < 0.05, r = -0.616).

How do you t How much tir the whole tas Is your child hand/arm fun **Activities per Activities per Activities perf Activities per**

* = p < 0.05

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MATERIALS & METHODS

RESULTS

elationship between ones, and gross and me motor performances				
	Dominant Hand Gross Motor Performance	Non-dominant Hand Gross Motor Performance	Dominant Hand Fine Motor Performance	Non-dominant Hand Fine Motor Performance
hink the child's hand works?	0,509*	0,570*	-0,174	-0,336
ne does your child need to do k, compared to peers?	0,440	0,509*	-0,256	-0,296
bothered by his/her reduced ction during this activity?	0,407	0,510*	-0,251	-0,320
formed with one hand	-0,453	-0,427	0,103	0,344
formed with both hands	0,627*	0,652*	-0,363	-0,511*
formed independently	0,527*	0,604*	-0,481*	-0,560*
formed with help	-0,520*	-0,534*	0,472*	0,493*

Table 1. The relationship between CHEQ scores, and gross and fine motor performances



CONCLUSIONS

In patients with hCP, motor deficit and affected hemibody is mostly the main focus and accompanying conditions can be overlooked. Impairment in the sense of two-point discrimination can be observed in these patients, and this impairment can be correlated with the motor performance, hand use experience and difficulties. Emotional, conduct, peer problems and hyperactivity and inattention is seen in cases with hCP. Clinicians should be aware of the increased risk of emotional problems in hCP cases as age increases. Patients with hCP should be treated in a holistic manner and a multidisciplinary approach should be performed. In addition to the impairment of the non-dominant hand, dominant hand also has impaired gross and fine hand skills. Therefore it is important to include the non-paretic hemibody in rehabilitation and follow-up the GMFCS level in clinical visits.

REFERENCES

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