

Hippotherapy in children with cerebral palsy

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INTRODUCTION

Cerebral palsy (CP) is defined as “persistent movement, posture and motor dysfunction that occurs as a result of a lesion or injury in the developing brain, which is not progressive but may change with age”. Recent studies show that hippotherapy may be beneficial in treatment as an additional method to the classical rehabilitation program that can provide motor gains in CP. In this study, it was aimed to compare the development of balance and motor functions of children with cerebral palsy who received personalized hippotherapy program applications in addition to standard physiotherapy applications.

MATERIALS AND METHODS

The research was carried out between October 2021 and March 2022 at Eskişehir Osmangazi University, Hippotherapy Application and Research Center. Twenty CP patients who were followed up and treated in Eskişehir Osmangazi University Faculty of Medicine, Department of Pediatric Neurology were invited to the study. Gross motor functions, Gross Motor Function Scale-88 (KMFF-88), and Berg Balance Scale were applied to CP patients before and at the end of the study. The findings before and after the treatment were determined.

RESULTS

Six of the children with cerebral palsy who participated in the study were girls and four were boys. The mean age of the participants was calculated as 76.70 ± 30.75 (33-139) months. The mean gestational age of the patients was determined as 33.3 (28-40) weeks. The sociodemographic characteristics of the study group are given in Table 1. A statistically significant increase was found between the Berg Balance Scale and KMFS-88 results before and after twelve weeks of hippotherapy in the study group. When the sub-scoring parameters of Gross Motor Function Scale-88 (GMDFS-88) were examined, an increase was observed in three sub-parameters, but no change was detected in the other two parameters (Table 2).

Feature	n (%)
Gender	
Girl	6 (60)
Male	4 (40)
Mean week of gestation	33.3 $\pm$ 4.44 weeks (min 28- max 40)
Average birth weight	1987.00 $\pm$ 895.16 grams (min 1080-max 3800)
Anthropometric measurements	
Average body weight	23.14 $\pm$ 9.68 kg (min 12.00-max 45.60)
Average height	112.70 $\pm$ 14.26 cm (min 88-max 134)
CP type	
Quadriplegic CP	4 (40)
Diplegic CP	3 (30)
Hemiplegic CP	3 (30)
Gross motor function scale	
Level I	1
Level II	4
Level III	3
Level IV	1
Level V	0

Table 1. Sociodemographic characteristics of the study group

	Before therapy		Post therapy		
	Mean (SD)	Median (min-max)	Mean (SD)	Median (min-max)	P value*
KMFS total score	66.24 $\pm$ 21.30	70.34 (23.92-88.14)	73.32 $\pm$ 22.67	78.46 (26.60-95.64)	< 0.05
Reach-roll	97.02 $\pm$ 8.11	100(74.20-100)	99.60 $\pm$ 1.26	100 (96-100)	> 0.05
Sitting	87.82 $\pm$ 27.10	100 (16.60-100)	90.33 $\pm$ 23.16	100 (28.30-100)	>0.05
Creep-laptop	60.71 $\pm$ 34.70	67.85 (0-100)	69.51 $\pm$ 34.68	84.52(0-100)	<0.05
Standing	44.29 $\pm$ 32.44	53.84(0-79.48)	57.62 $\pm$ 34.58	69.22 (2-92.30)	<0.05
Walking, running, jumping	38.81 $\pm$ 28.56	27.77 (5-84.72)	49.37 $\pm$ 33.77	40.96 (5-9583)	<0.05
Berg Balance Scale	23.90 $\pm$ 16.25	23 (1.00-51.00)	31.00 $\pm$ 18.39	31 (3.00-55.00)	< 0.05

Table 2. Results of the patients' KMFS-88 and Berg Balance Scale

CONCLUSION

The primary goal of hippotherapy is to improve an individual's balance, posture, function, and mobility. Although classical physical therapy and rehabilitation practices form the basis of cerebral palsy treatment, it has been recently stated that hippotherapy may also have a place in the treatment of CP patients in addition to these treatments. In our study, a significant increase was found in KMFS-88 scores after hippotherapy. There was a significant difference in the sub-parameters of crawling-kneeling, standing, walking, running, and jumping. No difference was observed in reaching-rolling and sitting sub-parameters. In our study, the effect of hippotherapy on balance was also evaluated. The positive effect of hippotherapy on balance was determined. In conclusion, this research is a clinical preliminary study showing that hippotherapy is an adjunct method to the classical rehabilitation program that can provide motor gains in cerebral palsy. It is thought that the positive developments obtained as a result of this 12-week clinical preliminary study will shed light on research on hippotherapy.