

Current tendency of rehabilitation therapy according to functional status in children with CP

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Objective

Various attempts have been made to improve the functional status of the children with cerebral palsy (CP). However, because of the heterogeneity of the disease, factors that play a decisive role in functional improvement are still unclear. The aim of this study is to investigate the current tendency of rehabilitation therapy in children with CP and effect of therapeutic intensity affect functional improvement in them.

Methods

A total of 112 participants (72 males and 40 females) with CP (mean age: 33.44±17.90 months) were recruited. Demographic data, GMFCS level, Gross Motor Function Measure (GMFM), Pediatric Evaluation of Disability Inventory (PEDI), age of initial rehabilitation therapy started and number of physical therapy given to the participants were recorded at base line, 6 months, and 12 months based on the study started date by qualified investigators. The subjects were divided into groups that received conventional physical therapy more than 5 times a week and those who did not. Treatment beginning age, and changes in GMFM and PEDI sub-scores were analyzed according to GMFCS level and age.

Results

Demographic data of the subjects are shown in Table 1. As the functional status of the subjects was worse, age of initial rehabilitation therapy started was younger and the intensity of treatment was higher ($p < 0.05$) (Table 2). There were no significant changes in GMFM and sub-scores of PEDI between two groups according to intensity of physical therapy (Table 3).

Conclusion

This study showed current status of rehabilitation therapy for children with CP through one-year follow-up cohort study. There was the tendency that the children with poorer functional status revealed starting treatment earlier and more intensive rehabilitation therapy. This may be due to the early diagnosis of CP in children with poorer functional status. Intensity of physical therapy did not affect the functional improvement of the patients. Considering the fact that rehabilitation treatment can be expected to have a greater effect in CP patients with lower GMFCS level, early identification and treatment are even more important in children with better functional status.

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Characteristics		Number (%)
Age in month (Mean±SD)		33.44±17.90
Sex	Male	72 (64.3%)
	Female	40 (35.7%)
GMFCS level	Level I	40 (35.7%)
	Level II	10 (8.9%)
	Level III	18 (16.1%)
	Level IV	21 (18.8%)
	Level V	23 (20.5%)
Physical therapy intensity	> 5 times a week	64 (57.1%)
	≤ 5 times a week	48 (42.9%)

GMFCS, Gross Motor Function Classification System

Table 1. Demographic data of participants

GMFCS level	Treatment beginning age (mean±SD)	p-value	Therapeutic intensity (sessions per week)	p-value
Level I	13.15±11.46		9.34±7.47	
Level II	10.2±5.85		8.89±4.72	
Level III	6.78±4.52	0.002*	11.77±6.56	0.044*
Level IV	6.90±5.51		15.25±12.27	
Level V	5.70±3.52		13.69±9.90	

GMFCS, Gross Motor Function Classification System

*Asterisk means $p < 0.05$

Table 2. Treatment beginning age and therapeutic intensity according to GMFCS level

	Physical therapy intensity	Base line (Mean±SD)	6 months (Mean±SD)	12 months (Mean±SD)	p-value
GMFM	> 5 times a week	46.85±19.50	49.85±18.98	52.30±18.59	0.07
	≤ 5 times a week	41.34±17.86	43.71±17.98	44.81±18.18	
PEDI Self-care	> 5 times a week	22.00±18.04	25.73±18.50	29.23±19.03	0.09
	≤ 5 times a week	17.25±12.37	20.15±13.88	23.12±15.30	
PEDI Mobility	> 5 times a week	21.14±18.37	26.23±19.36	29.62±19.58	0.07
	≤ 5 times a week	16.38±15.43	19.90±17.08	21.73±18.51	
PEDI Social	> 5 times a week	21.64±17.38	25.98±16.89	28.92±16.72	0.13
	≤ 5 times a week	19.81±14.53	23.25±15.07	26.25±15.97	

GMFM, Gross Motor Function Measure; PEDI, Pediatric Evaluation of Disability Inventory; GMFCS, Gross Motor Function Classification System

Table 3. Repeated measure ANOVA of GMFM and sub-scores of PEDI according to physical therapy intensity