소아재활

게시일시 및 장소 : 10 월 19 일(토) 08:30-12:30 Room G(3F)

질의응답 일시 및 장소 : 10 월 19 일(토) 11:00-11:30 Room G(3F)

P 3-28

Physical activity and GMFM in children with cerebral palsy

Byung Chan Lee[1*], Min Hwa Suk[2], In Kyeong Park[2], Jeong Yi Kwon[1,2†]

Samsung Medical Center, Department of Rehabilitation Medicine[1], Samsung Medical Center, Sungkyunkwan University School of Medicine, Department of PRE[2]

Purpose

Cerebral palsy (CP) has the movement and posture disorders, causing activity limitation in childhood (Rosenbaum et al., 2007). The children with CP have generally lower levels of health-related fitness (muscle strength and cardiorespiratory endurance, etc), that reduced the levels of physical activity. It is considered the relationship of the physical activity and motor function. The purpose of this study was to investigate the associations between Physical Activity and Gross Motor Function Measure in children with CP.

Subjects and Method

Fourty-six children (age, 7.46±1.57; 24 boys and 22 girls) with CP (Gross Motor Function Classification System level Ⅰ-Ⅲ) participated in this study. Inclusion criteria were: (1) children with CP, (2) 7 to 13 years of age; and (3) GMFCS , Ⅰ Ⅱ and Ⅲ. Potential subjects were excluded if they had received orthopedic surgery or neurosurgery and/or botulinum toxin injection within the previous 6 months. All participants' parents signed a written and informed consent by the subject's verbal assent. Physical activity levels measured with ActiGraph model GT3X accelerometer (Health One Technology, Fort Walton Beach, FL) on the waist. For physical activity, % sedentary physical activity (%SPA), % light physical activity (%LPA), % moderate physical activity (%MPA), % vigorous physical activity (%VPA), % moderate-vigorous physical activity (%MVPA) were measured using an ActiGraph model GT3X accelerometer (model GT3M, Health One Technology, Fort Walton Beach, FL, USA). The Gross Motor Function Measure (GMFM) were used for assessment of Korean version (Ko and Kim, 2015). The GMFM scale is used to plan treatment and detect quantitative changes in gross motor function in children with CP (Russell et al., 2000). All variables were tested for normality using Kolmogorov-Smirnov descriptive test. Bivariate correlations were conducted between physical activity and GMFM.

Results

The GMFM value showed a significant negative correlation with %SPA ($p < 0.05$), and positive correlations with %MPA ($p < 0.001$), %VPA ($p < 0.01$) and %MVPA ($p<.001$), especially, the %MPA %MVPA were found significant correlations. Weight was found to

have a significant positive correlation with SPA ($p < 0.05$) and a negative correlation with LPA ($p < 0.05$), MPA ($p < 0.05$) and MVPA ($p < 0.05$).

Conclusion

Gross motor function significantly influenced on the intensity of physical activity in children with CP. Children with GMFCS level 3 showed the lowest proportion insufficient %MPA, %VPA, and %MVPA though it was not significantly different in %sedentary and %LPA. Increasing high intensity physical activity can be improved the motor function.

Acknowledgment :This research was supported by Basic Science Research Program through the National Research Foundation of Korea funded by the Ministry of Education (NRF-2017R1A2B4004615)