

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)

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Physical activity and sleep in children with cerebral palsy

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Background/Objectives

Physical activity and sleep influence a lot in a healthy life in all population. Children with cerebral palsy (CP) are at risk of reduced physical activity (PA) and known to have a low quality of sleep. The purpose of this study was to evaluate the PA status and sleep quality of children with CP.

Method

Physical activity (PA) and quality of sleep were monitored with Actigraph in children with CP for a week. Moderate and vigorous PA time, sleep latency, and the software, ActiLife 6 calculated sleep efficiency. The proportion of the children who met the WHO guideline, more than 60 minutes of moderate to vigorous PA daily, was calculated according to the gross motor function (GMFCS level). The sleep latency less than 30 minutes and sleep efficiency more than 85% were regarded as normal. Also, the proportion of normal sleep latency and efficiency were calculated.

Results

Some of them were bothered with wearing the gadget; therefore 94 children (47 boys) participated in monitoring their PA, but 73 children wore it during sleep. Mean age of children were 7.51 ± 2.58 years old. Twenty-eight children were taking antiepileptic drugs. The percentage of children those who did enough PA as guideline was significantly different according to the gross motor function (Table 1 and Table 2). The children with GMFCS level 4 and 5 showed a significantly lower percentage of enough PA compared to those with GMFCS level 1. And children with GMFCS level 2 and 3 showed no significant difference compared to children with GMFCS level 1. Sleep latency was normal in 96.6%, and sleep efficiency was normal in 93.2% of children. The latency of sleep, efficiency, number of awakening during the sleep, and average awakening time were not significantly different according to the GMFCS level. The proportion of normal sleep latency and sleep efficiency was not significantly different according to gross motor function also between ambulatory and non-ambulatory children. And the use of antiepileptic drugs did not show an effect on sleep efficiency and latency.

Conclusion

Among the participants, about 50% were sufficiently doing PA according to the WHO guideline. Not surprisingly, gross motor function significantly influenced the amount of PA in children with CP. The quality of sleep was relatively better than the previous reports. Sleep quality was not affected by the gross motor function and the use of antiepileptic drugs.

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Table1. The number of participants and the percentage of those who met the WHO guideline (more than 60 minutes of moderate to vigorous PA daily) according to GMFCS level.

GMFCS	No. of children	No. of children taking AEDs	Sufficient PA (%)
1	25	5 (20%)	90%
2	17	2 (12%)	75%
3	8	2 (25%)	100%
4	20	7 (35%)	60%
5	24	12 (50%)	8.3%

Table 2. The difference of the those who met the WHO guideline (more than 60 minutes of moderate to vigorous PA daily) according to GMFCS level

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Coefficients:
              Estimate Std. Error z value Pr(>|z|)
(Intercept)    2.1972    0.7454   2.948  0.0032 **
factor(GMFCS)2 -1.0986    0.9428  -1.165  0.2439
factor(GMFCS)3 15.3688 1398.7212  0.011  0.9912
factor(GMFCS)4 -1.7918    0.8740  -2.050  0.0404 *
factor(GMFCS)5 -4.5951    1.0493  -4.379 1.19e-05 ***
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Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

(Dispersion parameter for binomial family taken to be 1)
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