신경근육재활 및 전기진단

게시일시 및 장소 : 10 월 18 일(금) 08:30-12:20 Room G(3F)

질의응답 일시 및 장소 : 10 월 18 일(금) 10:00-10:45 Room G(3F)

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Relationship between lower extremity motor power and nerve conduction study in cauda equina syndrome

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Objective

To investigate the relationship between lower extremity muscle strength and electrophysiological parameters in patients with peripheral neuropathy including cauda equina syndrome .

Subjects & Methods

We conducted the prospective study among patients admitted into our rehabiliation facility from Sep. 2018 to June 2019. Patients 18 years of age or older with limb paralysis due to cauda equina injuries were included in this study. Patients who had an upper motor neuron injury level higher than conus medullaris, a history of diabetes mellitus, undergone treatment of chemotherapy, or traumatic injury of lower extremity like fractures were excluded. Patients underwent a electrophysiological examination and muscle strength evaluation for more than 21 days after the injury. Muscle strength of the both knee extensor, ankle dorsiflexor and plantarflexor was measured using manual muscle test and isometric strength test(IST). Electrophysiological parameters, such as latency and amplitude of CMAP were measured for both femoral nerve, peroneal nerve, and tibial nerve. Correlations between the eletrophysiologic data and the muscle strength were analyzed via spearman correlation in this study.

Result

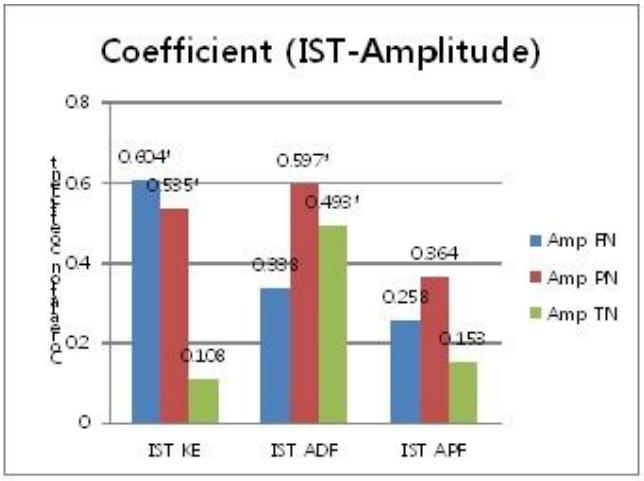
A total of 11 patients with cauda equine syndrome were enrolled in this study. Subject ages ranged from 52 to 78 years with a mean of 67.63 years and the study group was composed of 6 men and 5 women. There was significant statistical correlation between knee extensor muscle strength and femoral nerve amplitude($R=0.604$, $p<0.01$). Also, Ankle dorsiflextion muscle strength was correlated with peroneal nerve amplitude($R=0.597$, $p<0.01$). But, a significant correlation was not observed between ankle plantarflexion muscle strength and tibial nerve amplitude($R=0.153$, $p=0.498$).

Conclusion

We found that the cauda equine patients had a significant correlation with lower extremity motor power and nerve conduction study amplitude especially in knee extensor and ankle dorsiflexor. To be useful for predicting the objective muscle strength from electrophysiologic parameters, further study is needed.

Table 1. Demographic and clinical characteristics

Chgaracteristics	group (11)
Sex (n)	M:6 F:5
Age (years)	67.63±8.90
Level of Injury	
L1	2
L2	3
L3	1
L4	3
L5	2
Bladder symptom (n)	11
History of Operation (n)	11
History of Trauma (n)	0
MMT Knee extensor	N:5 G:14 F:2 P:1 T:0 Z:0
MMT Ankle dorsiflexor	N:4 G:11 F:4 P:2 T:1 Z:0
MMT Ankle plantarflexor	N:3 G:17 F:2 P:0 T:0 Z:0



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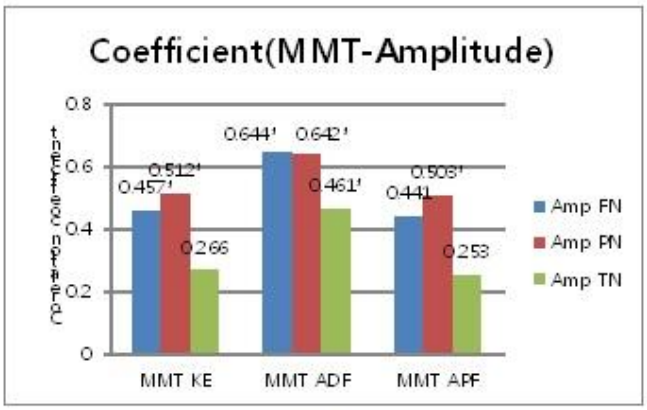

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Figure 1. Correlation between lower extremity motor power and nerve conduction study amplitude