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) 10:20-10:24 Room G(3F)

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Change of gait after dizziness; prospective study.

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Objective

Gait disturbances after dizziness are frequent symptoms. However, there are difficulties in the evaluation of dynamic stability during gait and monitoring of gait disturbances. To investigate changes in dynamic stability during gait after peripheral dizziness, we conducted this study.

Methods

This is a prospective study. This study included participants who visited otolaryngology department for dizziness and were judged peripheral dizziness by otolaryngology specialist. 3D motion analysis was conducted for level walking 3 times every month. Participants walked 8 meter walkway with self-selected speed. Explicit target was set parallel to the laboratory axis during walking trials. Whole body segments including head were captured with 8 optoelectric cameras. Dynamic stability during walking was assessed by step-width and IA (inclination angle) (Fig 1). Other tomporospatial, kinematic and kinetic parameters were also obtained. Repeatative ANOVA was used to reveal changes in gait parameters.

Results

Of the 122 participants referred for 3D gait analysis study, 37 participants were included in the analysis. Results are reported in Table 1. Walking speed, stride length and both step lengths improved with statistical significance but not step width. Walking speed improved at 2nd test through increasing stride length. Minimum IA in frontal plane did not show significant changes. Variability of IA in frontal plane reduced 3rd test with statistical significance. Variability of IA showed improvements at 3rd test (Figure 1).

Conclusion

Variability of CoM motion improved after 2 months of dizziness onset. We believe that clinicians should make more than two months of clinical efforts to prevent falls and restore walking stability.

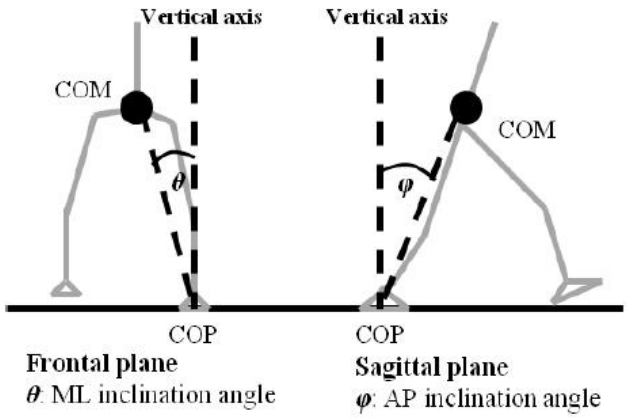

Fig 1. Inclination angle by CoM and CoP in frontal and sagittal plane

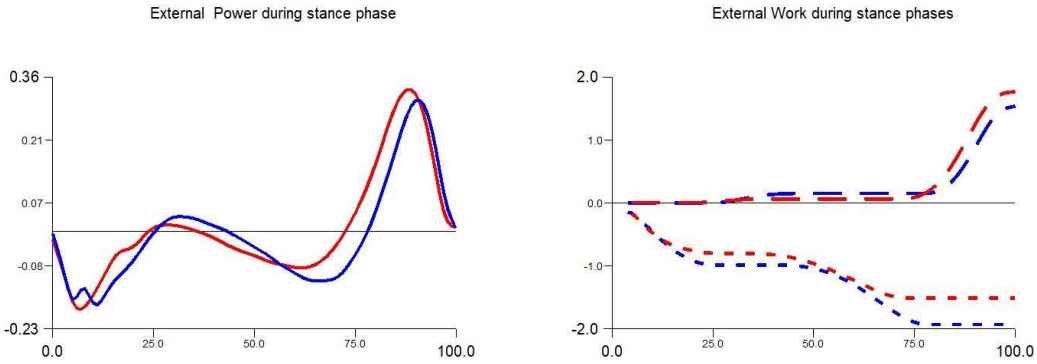

Fig 2. Example case with acute vestibular neuritis left = 1st, center = 2nd, right =3rd test

Table 1. Results of repetative ANOVA

	1st (mean/sd)	2nd (mean/sd)	3rd (mean/sd)	p-value
Speed	1.1293 / 0.1286	1.1602 / 0.1112	1.1641 / 0.0978	**0.0197**
Stride length	1.2074 / 0.1065	1.2391 / 0.0915	1.2338 / 0.0924	**0.0219**
Cadence	112.1499 / 7.7403	112.3873 / 7.3915	113.7496 / 8.8508	0.165
Step width	0.1089 / 0.0299	0.1060 / 0.0264	0.1096 / 0.0254	0.44.
Step length right	0.5997 / 0.0561	0.6191 / 0.0476	0.6180 / 0.0475	**0.0062**
Step length left	0.6074 / 0.0533	0.6198 / 0.0469	0.6213 / 0.0431	**0.0193**
St phase right	0.6250 / 0.0179	0.6204 / 0.0187	0.6178 / 0.0274	0.0859
St phase left	0.6185 / 0.0182	0.6213 / 0.0137	0.6217 / 0.0146	0.357
Sw phase right	0.3749 / 0.0179	0.3795 / 0.0187	0.3821 / 0.0274	0.0859
Sw phase left	0.3814 / 0.0182	0.3786 / 0.0137	0.3782 / 0.146	0.357
IAF_min_sum	5.134 / 1.7731	4.7647 / 1.3083	5.1046 / 1.3948	0.103
IAF_max_sum	9.9878 / 2.7984	9.8364 / 2.3374	10.1703 / 2.3910	0.569
IAF_RMSE	0.5155 / 0.1784	0.5027 / 0.1698	0.3829 / 0.1458	**< 0.001**
IAF_RMSE_SS	0.4496 / 0.1690	0.4387 / 0.1609	0.3243 / 0.1270	**< 0.001**
IAF_RMSE_DS	0.6671 / 0.2158	0.6524 / 0.2071	0.5293 / 0.2032	**0.0033**

IAF: inclination angle in frontal plane, RMSE: root mean square, SS; single stance phase, DS; double stance phase. St: stance phase, Sw: swing phase, IAF: inclination angle in frontal plane, min: minimum, sym: symmetry