Contexte. – Depuis 2010, une thérapie par la danse (TPD) est proposée à différentes clientèles du centre de réadaptation Lucie-Bruneau, Montréal, Canada. La TPD est basée sur les composantes principales du mouvement de la Théorie de Laban (Laban, 2003) : Body (corps) ; Space (espace) ; Effort (effort) et Shape (forme). D’une durée de 1 h 30 par semaine sur 12 semaines, elle vise l’intégration et la participation sociale des personnes adultes atteintes de déficiences motrices, l’amélioration des déplacements, de l’équilibre, de l’endurance, etc. L’efficacité du programme n’a jamais été formellement investiguée.

Objectifs. – Explorer les retombées d’un atelier de TPD sur l’intégration et la participation sociale chez des personnes adultes atteintes de déficiences motrices.

Méthode. – Mesures pré- et post-évaluations. Quatre outils ont été utilisés pour mesurer les effets chez des groupes de participants de taille variable au cours des dernières sessions de 12 semaines :

- le Flow State Scale (FSS2) ;
- le Time Up and Go (TUG) ;
- la mesure des habitudes de vie (MHAVIE 3.0), et ;
- une entrevue semi-structurée portant sur la satisfaction générale des participants a été réalisée en fin de programme.

Résultats. – En fin de session, le TUG (n = 16 sujets) présentait un changement significatif (15 ± 6s vs 11 ± 6s, p = 0.001). Les participants sont passés de 100 % de risque de chute à 25 % en post-TPD. Le FSS2 (n = 14) présentait une augmentation significative (p = 0.004) indiquant que les participants étaient plus aptes à continuer la pratique de la danse. La MHAVIE (n = 6) présentait un changement significatif (p = 0.05) pour les items regroupés dans la dimension « Loisirs ». Aucune différence significative n’était retrouvée pour les dimensions « Déplacements » et « Vie communautaire ».

Discussion/Conclusion. – L’étude préliminaire des retombées auprès des participants nous encourage à penser que l’atelier participe à : augmenter la participation.

CO19-002-e

Stroke and visual dependence according to the task

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Keywords: Visual dependence; Balance; Stroke

Introduction. – Visual dependence (VD) for keeping balance is defined by an excessive confidence in the visual input, even when erroneous, despite normal vestibular and sensory function. Often observed after stroke, VD could have a negative impact on balance and walking. Various tests are designed to evaluate VD. The aim of this study was to compare two of these tests with the hypothesis that the results could be not correlated as they examine different physiological functions.

Method. – The first test was the adjustment of a luminous rod to the vertical position despite a tilted framework with the Rod and Frame Test (RFT). The degree of visual dependence was defined by the average of the absolute difference between the vertical with frame and the basic vertical. The second test was a sitting posture on a dynamic force platform under optokinetic stimulation. Parameters recorded were the tilt of the body (absolute difference between the mean position of the centre of pressure (CoP) on the frontal plane during optokinetic and the mean basic position), the stabilization reaction variability of subjects for each task was correlated to right lesion. They confirm qualitative studies pointing the link between insular lesions and VV tilts. The aim of our study was to investigate the critical brain areas that cause contralesional VV tilts in a large sample of 60 consecutive patients with unilateral subacute hemisphere stroke. Materials and methods. – MRI of 60 patients (56.6 ± 14 years; 22F/38M) with VV measured at 9.1 ± 6.4 weeks after unilateral hemispheric first stroke (37 right, 23 left) were analysed with a VLBM statistical approach and compared with a recent mapping of human vestibular cortex. VV was considered pathological beyond ± 2.5°. Only brain areas with a significant t (P < 0.05) were considered.

Results. – Twenty-seven (45%) patients showed pathological contralesional VV tilt and 3 (5%) ipsilesional VV tilts. Abnormal contralesional VV tilt was equally frequent in right- and left-sided lesions (8/22; 19/35; Chi square test = 0.19) but was more severe in right-sided lesions (5.1° versus –2.2°; t = 55; P = 0.024). VLBM analysis showed that the insula, the inferior frontal gyrus and the Rolandic operculum were involved when patients showed contralesional VV tilts. In addition, in right-sided lesions the pre- and post-central gyri and the transverse temporal gyrus also played a role.

Conclusion. – The right hemisphere is predominant for VV perception which is based in part on the vestibular cortex network.

References


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Oral communications

English version

CO19-001-e

Neural bases of the visual vertical after hemispheric stroke

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Keywords: Visual vertical; Stroke; Voxelwise lesion-behaviour mapping (VLBM) statistical approach

Goals. – Only two studies have investigated the neural bases of visual vertical (VV) after hemispheric stroke with a voxel lesion behaviour mapping (VLBM) statistical approach. The first included only few patients [1] and the second tested patients in acute phase excluding the most severe, with no distinction between ipsi- and contralesional VV tilts [2]. They confirm qualitative studies pointing the link between insular lesions and VV tilts. The aim of our study was to investigate the critical brain areas that cause contralesional VV tilts in a large sample of 60 consecutive patients with unilateral subacute hemisphere stroke. Materials and methods. – MRI of 60 patients (56.6 ± 14 years, 22F/38M) with VV measured at 9.1 ± 6.4 weeks after unilateral hemispheric first stroke (37 right, 23 left) were analysed with a VLBM statistical approach and compared with a recent mapping of human vestibular cortex. VV was considered pathological beyond ± 2.5°. Only brain areas with a significant t (P < 0.05) were considered.

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Conclusion. – The right hemisphere is predominant for VV perception which is based in part on the vestibular cortex network.

References


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Introduction—these two tests are very different and not correlated in a stroke population. The RFT is a cognitive task assessing the VD with a static method, the second test is a postural task evaluating the effect of dynamic visual disturbance. Visual dependence is not an absolute concept but is depending on the task.

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CO19-003-e

A clinimetric study of lateropulsion measure by Verticam for patients recovering from a stroke

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Keywords: Lateropulsion post stroke; Measure by Verticam

Introduction.—After a cerebrovascular accident (CVA), clinical scales are used to qualitatively evaluate lateropulsion. Verticam is a system using a high-speed camera. It allows measuring lateropulsion quantitatively [1]. This study aims to analyze the clinimetric properties of this technique.

Methodology.—The trunk orientation of 30 patients was measured by Verticam at 30 ± 3 days after their first hemispheric stroke (age = 62 ± 17.7 years; sex: 14F/16 M; lesion side: 14L/16R), and two days later. Seven patients had a SCP (Scale for Contraversive Pushing) score > 0.5, which is the proposed criterion for clinical lateropulsion diagnostic [2]. Verticam quantified the trunk lateral inclination thanks to a measure of the average orientation of a segment between two markers (Tb & L3) (negative sign if the inclination was contralesional). The measures were performed in a sitting position during 30s, eyes open. Seventeen controls (mean age 52 ± 10 years) were also tested. A non-parametric statistical analysis was performed.

Results.—The average trunk orientation was −0.6 ± 1.3° within controls, which led us to set the pathological threshold to every measure below −3.5°. Surprisingly, the average orientation was not different within patients: −0.8 ± 7.8°. The trunk orientation of patients with lateropulsion characterized by SCP was not significantly different from other patients (−4.3 ± 15 vs 0.5 ± 1.9°, ns). One patient had a contralesional trunk inclination below −3.5°. The inclination measured by Verticam was not correlated with the SCP score (r = −0.29, P = 0.12). In patients, measures of trunk inclination two days apart were correlated (r = 0.52, P < 0.01).

Discussion.—This technique for measuring lateropulsion seems to be unreliable.

References

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Postural adaptations to wearing safety shoes with convex soles

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Keywords: Posture; Soles; Workstation; Risk

Aim.—Determine posturological effects of wearing different types of safety shoes meant to standing workstation optimization.

Material.—Posturological data [coordinates (X, Y), Total Area (A), Anteroposterior and Lateral Magnitude (Ant-M et Lat-M), Length (L) and Velocity (V) of the Center of Pressure] were measured using a baropodometric platform (WinPod, sampling frequency: 200 Hz) while the forces (Fx, Fy et Fz) were measured by a force plate (AMTI, sampling frequency: 1 kHz).

Participants.—Ten workers [age: 23.3 ± 6 years old, height: 1.80 ± 0.05 m, weight: 77.9 ± 8 kg, shoe size: 43–44].

Methods.—Participants were asked to maintain three times 120s standing position over WinPod which was embedded over the force plate to ensure synchronized acquisition, according to the following modalities: barefoot, safety shoes with conventional standards (λ), safety shoes (OREGON), recognized as more comfortable than λ, safety shoes with convex soles, meant to be more ergonomic (MBT). An Anova with Fisher post-hoc was done in order to compare the 4 conditions. A level was set at α = .05.

Results.—No significant variations were observed for X, Y and Lat-M. However, A, L and Ant-M were significantly higher when wearing MBT [F(3, 116) = 10.5; 94.3; 94.3; 9.5; respectively P < 0.05]. Only minimal Fy [F(3,116) = 11.6] and maximal Fy [F(3,116) = 6] absolute values were significantly higher (P < .05).

Discussion.—The results of the current study shows that space-time parameters (A, L, V, Ant-M) were amplified while wearing MBT, probably due to increase in Fy [1,2]. Surprisingly, this was not the case of the center of pressure.

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