constraints and abnormal joint positions associated with the pathological patterns. This study may validate the proposition that the abnormal muscle responses are the consequences of biomechanical restrictions at joints rather than central nervous system impairments. This finding may help clinicians to better appreciate the effectiveness of surgical intervention in the management of CP.

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P025–EN

Brain plasticity and late acquisition of prosthetic gait: Data of functional MRI and gait analysis of a patient with congenital lower limbs atrophy. Preliminary results

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Keywords: Brain plasticity; Functional MRI; Congenital limb atrophy; Femoral amputation

Introduction.– In France, the number of amputees is estimated at 0.6 for every 100 inhabitants, with a very low proportion of congenital amputations (less than 0.35 for every 100,000 births). Very few patients reach adulthood without having received rehabilitation care or using prosthesis.

Study

Objectives.– First, describe the modifications of the cortical representation with functional MRI (fMRI) during gait learning with prosthesis of a patient with congenital lower limb atrophy, then correlate these modifications with kinetic and kinematic parameters of gait analysis.

Patient.– A 17-year-old African girl, with congenital lower limb atrophy underwent a double distal trans-femoral amputation at 15 years old. Without any rehabilitation or prosthesis, she moved indoors on her two stumps or with a manual wheelchair.

Materials and methods.– FMRI and gait analysis before prosthesis and 2, 4 and 6 months after.

Discussion.– Brain plasticity corresponds to the modifications of cortical activation of the cerebral regions during learning, and can be evaluated by successive fMRI. Brain plasticity and its partial reversibility are well studied in traumatic amputees [1–2]. However, no study of functional imaging concerning patients with congenital limb atrophy has been found. For our patient, which initial cartography of cerebral activated areas will be found, compared to a healthy person one? What will be the structural and functional modifications of this cortical organization during gait learning (2, 4 and 6 months after the beginning of prosthetic gait)? This study with fMRI will be correlated to kinetic and kinematic parameters of gait analysis in order to evaluate her gait abnormalities, learning and improvements.

Conclusion.– No study of brain plasticity during the late acquisition of prosthetic gait has been found in literature. Preliminary results of this study will be presented.

References

[1] Ramachandran VS et al. Perceptual correlates of massive cortical reorganization. Science 1992;258:1159–60.

[2] Giraux P, Sirigu A. Des mains à la reconquête du cerveau. Les dossiers de la recherche 2010;40:56–9.

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Quinine and spasms: How effective?

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Keywords: Spasms; Quinine

Introduction.– Spasms are common in neurological patients (multiple sclerosis, spinal cord injury. . .); our case study aims to report the effectiveness of quinine taken at very low doses based on a chance observation of improvement after ingestion of soda with traces of quinine.

Patients and methods.– After excluding contraindications for taking quinine, we invited 8 patients with neurological spasms and significant spasticity to drink a daily 330 mL soft drink with quinine at low doses. Response was evaluated after 10 days with the Penn spasm scale.

Results.– All eight patients had a score of 3 on the scale of Penn at the beginning, with 5 multiple sclerosis, and 3 spinal cord injuries. This gave an improvement in 6 cases (75%) of the order of at least one score, and score improvement from 3 to 1 on the scale of Penn in two cases (25%).

Discussion and conclusion.– The treatment of spasm by low-dose quinine has been controversial in the literature, however, in our series we found a satisfactory improvement. A prospective, randomized, double-blind trial would be warranted.

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P027–EN

Delayed recovery of prehension after stroke: A clinical and kinematic analysis

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Keywords: Stroke; Motor recovery; Kinematics; Prehension

Introduction.– Motor function recovery of the upper limb after stroke remains very limited with the persistence of an impaired grip in about 80% of the cases. This recovery is not linear, and occurs in two phases: an initial phase of rapid recovery during the first 3 months followed by a slower phase, which tends to a plateau. We describe a patient who had delayed distal motor recovery in the upper limb 9 years after stroke.

Case report.– A 53-year-old man had an ischemic stroke in 2001 with right hemiplegia. After 5 months, he presented a discreet proximal motor recovery of the upper limb and 4 years later, he had a beginning of a non functional thumb-index pinch. In 2010, all types of grip were possible with a Fugl Meyer score of 56/66. The strength of the right palm was assessed at 70% in comparison to the healthy side, and the Box and Block test dexterity at 50%. Kinematic analysis conducted in 2010 showed, comparatively with the previous one performed in 2006, a decrease of movement time ($P < 0.01$) with increasing time of peak velocity ($P < 0.01$) and a hand opening earlier and more compared with healthy controls ($P < 0.01$). There was also a significant difference in movement time ($P < 0.05$) for the power and the precision grip.

Discussion.– This is a case of delayed motor recovery of the upper limb after stroke with recovery of a precision grip after 9 years evolution. The kinematic analysis showed a movement initially variable but whose variability decreasing with time. The profile of hand opening had evolved from sliding the fingers over the object, towards a more suitable grip comparable with control subjects. Even in the absence of early recovery, functional distal motor recovery of the upper limb can occur at distance of stroke. Kinematics analysis is an interesting tool to assess the improvement of distal motor recovery in the upper limb after stroke.

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