Materials and methods

This study is ongoing at the University Hospital of Bordeaux. All consecutive patients with aphasia, first left hemispheric stroke confirmed by imaging, right-handed, non-demented, have been proposed for inclusion. MEPS were collected after stimulation of M1 the abductor pollicis and the orbicularis oris, right and left. The assessment of language performed in the acute phase was composed of: Language Screening Test (LAST) and the aphasia severity rating scale (ASRS) of the Boston Diagnostic Aphasia Examination (BDAE). Three and six months later, the language assessment was composed by: LAST, ASRS and BDAE. Good recovery from aphasia was defined as a score of ASRS 4 or 5. The association between the presence of a MEP after stimulation and good recovery was studied by Fischer exact tests. Results

In our interim analysis, 46 patients were followed at 3 months, and 23 at 6 months. The presence of MEP of the right hand (left cortical stimulation) was significantly associated with good recovery 3 months ($P = 0.003$) and 6 months ($P = 0.003$) after a stroke. The presence of MEP of the right orbicularis oris (left cortical stimulation) was significantly associated with good recovery 3 months ($P = 0.003$) and 6 months ($P = 0.011$). Conclusion

MEP of hand and lips predict recovery from aphasia. This results suggest the importance of production systems in the recovery of language, suggesting a new approach compared semantic core highlighted in the old classic models such as Lichtheim.

Keywords

Motor-evoked potential; TMS; Aphasia; Prognosis; Stroke

Disclosure of interest

The authors have not supplied their declaration of conflict of interest.

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Global/local integration and corpus callosum: Anatomical and behavioural study of case of Allgrove syndrome (triple-A syndrome)

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Visuospatial perception is a complex ability, with various aspects. We are continuously integrating different information, like when our brain processes visual information from left and right hemispheres. In order to form a single and unitary image, the processing of visuospatial information is critical. The amplitude of N2 and N270 was shown to be significant in the comparison between congruent conditions and the group without left neglect. These results provide evidence for the dissociation between the left neglect and the left visual suppression, which is consistent with previous studies. In addition, the present study suggests that neural substrates of neglect may differ depending on the hemisphere involved; left neglect might be related to an abnormal function of the right hemisphere, whereas right neglect might be related to an abnormal function of the left hemisphere. Moreover, the results from our behavioural protocol show that neglect patients had a higher latency than the control group. For healthy controls, two frontocentral ERPs negative components, N2 and N270, were elicited in all conflict conditions compared to congruent conditions. Whereas the latency of N2 and N270 was not different between the two groups for left targets, these components were not generated by the presentation of a right visual or auditory target with a left distractor in patients. The suppression for left targets in patients supports the hypothesis that the right IPL lesion might be a crucial site for automatic activation of competing motor plans facilitated by cross-modal conflicting stimuli. In patients, the behavioral facilitation for right visual targets only may be due to additional effect of visual dominance over audition in spatial tasks.

Keywords: Crossmodal conflict; Inferior parietal lobule; Spatial neglect

Disclosure of interest The authors have not supplied their declaration of conflict of interest.

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Visuospatial perception is a complex ability, with various aspects. We are continuously integrating different information, like when our brain processes visual information from left and right hemispheres, in order to form a single and unitary image. The processing of visuospatial information is critical. The processing of visuospatial information is more specifically its global/local aspect, has led to many studies, indicating the active involvement of the corpus callosum.

Objective To study the influence of an alteration of the corpus callosum on the integration of global/local information.

Methods C.M. presents an Allgrove syndrome [1], likely a pathology of white matter fibres. This patient, with a singular neuropsychological profile, is partially impaired in global and local information integration and shows a corpus callosum alteration. This research, a case-study with a group of 6 matched control subjects, relied on a two-level approach, anatomical (MRI-DTI) and behavioural, using a hierarchical letter paradigm [2].

Results Despite all the precautions needed regarding the interpretation of our results, some specificities are emphasized: at an anatomical level, we note, for C.M., a microscopic alteration of her corpus callosum; the results from our behavioural protocol show, for C.M., a higher precedence effect, a greater sensibility to interference and a facilitation effect more important.

Discussion These different results, never reported before in this pathology, indicates, for C.M., an impairment in global/local integration associated with a corpus callosum alteration. This alteration, probably part of a more global degenerative process linked to her pathology, shows the relevance of an extended neuropsychological assessment coupled to a DTI study, in order to better understand impairments generally appearing in neuropsychological rehabilitation.

Keywords: Visuospatial processing; Global/local integration; Corpus callosum; Allgrove syndrome; Diffusion tensor imaging (DTI)

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Physical attractiveness elicits more stable interpersonal coordination
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Introduction Nowadays, high-technology (utilization of avatars or robots) has been becoming widely used in medical rehabilitation programs. The biggest advantage of the high-tech agents is to help designing individualized rehabilitation plans and saving caregivers’ time. Since previous research in human-human interaction showed that the way individuals interact with others is influenced by the physical attractiveness of the other people (i.e. [1]), the present study aims to investigate whether interpersonal coordination is influenced by the physical attractiveness of virtual agents.

Methods 34 healthy participants coordinated with a physically attractive virtual agent and a less attractive virtual agent on a Wacom tablet. Agents were shown in a static (picture) or in a dynamic (video) form. Participants were instructed to perform in-phase or anti-phase coordination with the agents at the 100 or 150% of their own preferred frequency. At the same time, a reaction time task (on the agent’s forehead) was answered simultaneously in order to attract participants’ attention to the physical attractiveness of the agent.

Results Results showed that when coordinating at the preferred frequency, participants showed the most stable motor coordination with the moving attractive agent as compared to other static or moving agents.

Discussion Our results suggest that it is critical to take into account the physical attractiveness of the agents when using them...