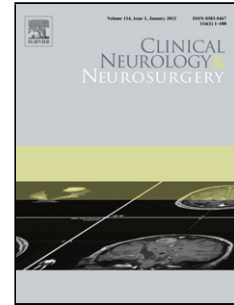


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Not single brain areas but a network is involved in language: applications in presurgical planning

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Highlights

- Presurgical Planning is necessary to enhance the chances of brain lesion resection
- A normative language template is beneficial for presurgical planning
- A vast network of brain regions are responsible for the language function
- Nominating few brain areas to be responsible for the language needs reconsideration
- Constructing a language template requires robust methodology

Abstract

Objectives: Language is an important human function, and is a determinant of the quality of life. In conditions such as brain lesions, disruption of the language function may occur, and lesion resection is a solution for that. Presurgical planning to determine the language-related brain areas would enhance the chances of language preservation after the operation; however, availability of a normative language template is essential.

Patients and Methods: In this study, using data from 60 young individuals who were meticulously checked for mental and physical health, and using fMRI and robust imaging and data analysis methods, functional brain maps for the language production, perception and semantic were produced.

Results: The obtained templates showed that the language function should be considered as the product of the collaboration of a network of brain regions, instead of considering only few brain areas to be involved in that.

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