Poststroke Communication Disorders and Dysphagia

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KEYWORDS

• Communication disorders • Dysphagia • Aphasia • Stroke • Deglutition disorders

KEY POINTS

- Communication and swallowing disorders are very common after stroke.
- Evaluation of communication disorders after stroke requires formal testing of each area of language for accurate diagnosis.
- Swallowing disorders improve for most stroke patients but chronic deficits occur.
- Treatment of swallowing disorders after stroke should focus on the underlying impairment while maintaining the least restrictive diet.

Stroke can significantly affect a person's ability to communicate and swallow effectively. In many cultures, people interact by conversing during meals. When the ability to express oneself and/or understand others is affected, rehabilitation of other impairments becomes more challenging. The overall goals of rehabilitation for impaired swallowing and communication and swallowing deficits may differ based on the specific deficits caused by the stroke but the main goal is always to improve the patient's everyday interpersonal interactions and optimize participation in society. The specific goals vary, in part because of the variety of functional deficits caused by the stroke. In impairments of communication and swallowing, involvement of a speech language pathologist is valuable for assessment and treatment.

COMMUNICATION DISORDERS

Verbal communication is a complex process dependent on intact language, speech, and hearing functions. The focus here is on speech and language because they are most commonly impaired by stroke. A brain lesion can affect (1) the formulation, expression, and/or understanding language (aphasia); (2) planning and/or

The authors have no commercial or financial conflicts of interest to disclose.
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Phys Med Rehabil Clin N Am 26 (2015) 657–670
http://dx.doi.org/10.1016/j.pmr.2015.06.005 **pmr.theclinics.com**
1047-9651/15/$ – see front matter

coordination of articulatory movements and rate/rhythm for speech production (apraxia of speech [AOS]); or (3) motor patterns (dysarthria).

Neural Control

Aphasia

The brain networks that support language function are largely circumscribed to specific areas of the cerebral cortex and the white matter tracts connecting those areas (**Fig. 1**). Traditional language control models identify Broca area (Brodmann area [BA] 44 and BA45) and Wernicke area (BA22) as among the most crucial cortical locations for language control. Other important areas include the angular gyrus (BA39) and the inferior temporal cortex (BA21). The left posterior inferior frontal gyrus or Broca area is related to most language functions including comprehension and production of language.[1] The superior temporal cortex (Wernicke area) has been associated with language reception and processing. Other important areas include BA6, premotor cortex; BA40, supramarginal gyrus; BA37, posterior inferior and middle temporal cortex and fusiform cortex; BA21, inferior temporal cortex; and BA38, anterior temporal cortex.

Dysarthria

Dysarthria occurs when weakness, dyscoordination, and/or sensory loss affect muscle function in one or more of the five subsystems of speech (ie, respiration, articulation, phonation, resonance, and/or prosody [rate/rhythm]).[2] There is abnormal

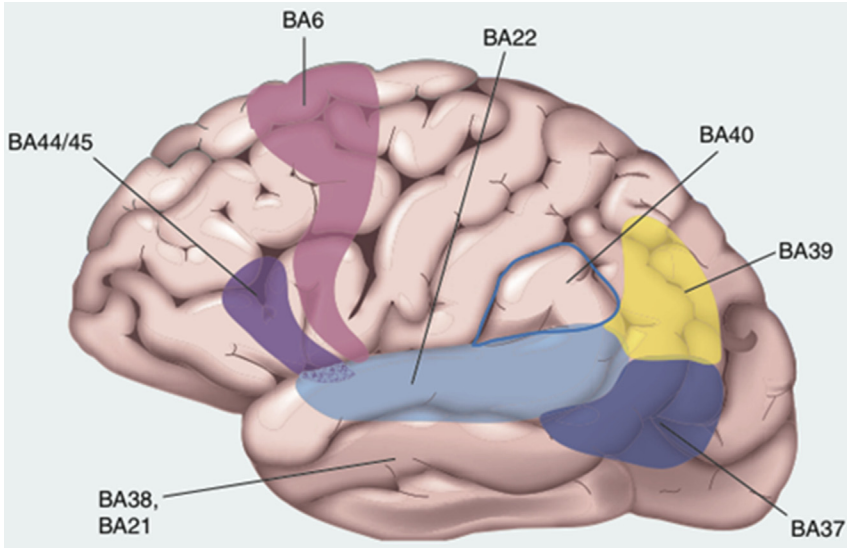

Fig. 1. Network of cortical regions supporting most language tasks. BA44/45: posterior inferior frontal gyrus (Broca area); BA6: premotor cortex; BA22: superior temporal cortex; BA40: supramarginal gyrus; BA39: angular gyrus; BA37: posterior inferior and middle temporal cortex and fusiform cortex; BA38: anterior temporal cortex; BA21: inferior temporal cortex. The white matter tracts that connect these cortical regions are also critical to the language network. Although the entire network may be engaged in the task (if it is sufficiently difficult for the person), lesions to different components of the network cause distinct deficits. BA, Broadmann area. (*From* Gonzalez-Fernandez M, Hillis AE. Speech and language therapy. In: Ovbiagale B, editor. Stroke management and recovery, vol. 1. 1st edition. London: Future Medicine Ltd; 2013. p. 151; with permission.)