Learning Objectives

MedBridge

Word Processing & Verbal Short-Term Memory Impairments in Aphasia

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Course Objectives:
Upon completion of this course, learners will be able to:

- Describe two models that hypothesize about the relationship between word processing (naming and repetition) and verbal STM and how these models account for the co-occurrence of word processing and verbal STM impairments
- Identify the principles of an interactive activation model of word processing and how these principles can be applied to diagnosis and treatment of word processing and verbal STM impairments in aphasia
- Use word processing and verbal STM tasks as diagnostic indicators of the locus of language impairment in mild, moderate and severe aphasia
- Describe the principles and procedures of a treatment for word processing and verbal STM impairment that uses manipulations of memory load incorporated into word processing tasks

Chapter 1: Theoretical and Empirical Background
In this chapter, I will review the history of our understanding of word processing and verbal STM impairment in aphasia, review two cognitive neuropsychological models of repetition in aphasia. I will also address two questions about the relationship between verbal STM and language impairment in aphasia and how one’s view of this shapes approach to diagnosis and treatment of these impairments.

Chapter 2: The Interactive Activation (IA) Model of Repetition of Single and Multiple Word Processing
Chapters 2-4 will proceed with this model as the theoretical framework for discussions of diagnosis and treatment of mild aphasia. Chapter 2 will discuss this model in greater detail. This model hypothesizes a common impairment of the ability to maintain activation of representations of words in both single word processing and multiple word processing tasks. I will use the task of repetition to demonstrate the relationship between verbal STM and word processing. I will show that a single deficit in maintaining activation of words varies in severity (the severity continuum hypothesis); a more severe impairment affects single word repetition and milder impairment affects repetition of multiple word utterances (e.g., word sequences or sentences). I will provide evidence to support this hypothesis and some examples.
Chapter 3: Using Repetition and Verbal STM Tasks to Diagnose Word Processing Impairment in Cases of Mild Aphasia

Aphasia can present as a severe disorder, affecting production, comprehension or repetition of single words, but it can also be quite mild. In these latter cases, performance on standard screening batteries for aphasia (e.g., the Western Aphasia Battery-Revised, Kertesz, 2006) can be within the range of normal, unimpaired language ability. And yet, the latter group may still complain of difficulty communicating with others. They need to work on language and communication beyond single words. At any level of severity, it is important to diagnose the source of language impairment, whether it affects access to semantic, lexical or phonological representations of words. Most test batteries that incorporate a psycholinguistic model approach can determine whether a single word processing disorder reflects semantic or phonological processing, but if single word processing is adequate, these tests will not be sensitive to the source of the word processing impairment. In this chapter, I will present a protocol of repetition span tasks that vary the characteristics of words to be recalled (e.g. imageability, length) and show how these can be used to identify the source of language impairment (e.g. semantic or phonological processing of words) in mild aphasia.

Chapter 4: Incorporating a Verbal STM Component into Treatments of Language Disorders in Aphasia

I will discuss the rationale for incorporating a verbal STM component into treatments of language impairment. I will review some current approaches to treatment of aphasia that focus on improving verbal STM span in order to improve word and sentence processing. This area of research is fairly new. I will provide examples of current treatments for verbal STM in the literature and provide a detailed review of treatment protocols that we are currently testing in my laboratory.