

# Aphasia – paper essay



**ASSIGN  
BUSTER**

disturbance of any or all of the skills, associations and habits of spoken and written language produced by injury to certain brain areas that are specialized for these functions. Thus, aphasia can affect auditory comprehension, oral expression, reading, writing, word finding, and can be accompanied by impaired vision, hearing, muscle weakness and paralysis or muscle incoordination (McCaffrey, 2001). Aphasia is an acquired condition, most commonly secondary to a traumatic brain injury (TBI) as may occur during motor vehicle accidents; or due to cerebral vascular accidents (CVA) also known as a stroke (when the brain is deprived of oxygen). Less commonly, aphasia may occur upon the development of a brain tumor, an infection or due to Alzheimer's disease, resulting in either a temporary or permanent condition.

Aphasia is categorized in accordance with the brain areas affected. The left hemisphere of the brain is primarily in control of language (in most people); thus aphasia is categorized by fluency of speech. Fluent aphasia has normal articulation and rhythm of speech, but is deficient in meaning since fluent speech is not equivalent to meaningful speech. Non-fluent aphasic speech is slow and labored with short utterance length, so the flow of speech is somewhat impaired at levels of speech initiation, sequencing and production of grammatical sequences (McCaffrey, 2001).

The non-fluent types of aphasia are Broca's and transcortical motor aphasia. The fluent types are Wernicke's, anomic, and conduction, transcortical sensory aphasia; while global aphasia is neither fluent nor non-fluent. Broca's aphasia is the most common of the non-fluent aphasias, also described as verbal, motor, or efferent aphasia. In truth, Broca's aphasia is

really expressive aphasia, as individuals understand and process speech but may have difficulty speaking.

The site of lesion affects the left frontal lobe, more specifically, the third frontal convolution (including the gyrus and sulcus) also known as Broca's area. " This corresponds to Brodmann's areas 44 and 45, which makes up the lower part of the pre-motor cortex; damage often extends down into the white matter and, in some cases, extends posteriorly to the most inferior part of the motor strip" (McCaffrey, 2001). In addition, the principal output from Broca's area is to cell columns in the tongue and face areas of the pre-central gyrus, therefore, this makes speech " telegraphic", in choppy uttered words, and their ability to read is also impaired. Hemiplegia/Hemiparesis (weakness) of the right side is common; therefore, the right side of the face and right arm may be affected due of the organization of the damaged motor strip, making it difficult to write. Transcortical motor aphasia, also known as dynamic aphasia is typically caused by smaller lesions than those in Broca's aphasia; outside of the primary language areas, specifically rostrally and anterior to Broca's area. The damage may extend down into the white matter below Broca's area although not affecting Broca's area itself.

The lesion typically cuts communication between Broca's area and the pre-motor or supplementary motor area corresponding to area 6. " This type of lesion may also sever links between Broca's area and the basal ganglia and/or the thalamus, further affecting the link between Broca's area and the limbic system which also seems to be involved in memory (hippocampus) and speech and language" (McCaffrey, 2001). Transcortical aphasias are distinguished from other types by the individual's ability to repeat speech. In

transcortical motor aphasia, repetition is much better than other types of speech, but individuals will have great difficulty initiating and organizing responses in conversation.

Wernicke's aphasia is also known as receptive aphasia, it occurs when there is damage to the temporal lobe, areas 37, 39, and 40. The superior temporal gyrus is near the primary auditory cortex which plays a critical role in relating incoming sounds to their meaning. This area is specialized for storing memories of the sounds that make up words. Therefore, by definition Wernicke's Aphasia is when there is difficulty in understanding spoken or written language. Patients can not make sense of the words. Patients may speak in long sentences that have no meaning, add unnecessary words and even create " new words.

" Patients are usually unaware of their mistakes. In Wernicke's Aphasia, the auditory and visual comprehensions of language are impaired. The damage to the temporal lobe is not near the part of the brain that control movement. Therefore, there is no body weakness. Another type of aphasia is anomic aphasia which is also known as nominal aphasia. The site of damage in the brain occurs in the inferior temporal lobe.

The supramarginal gyrus and the angular gyrus are often affected. Anomic aphasia is the least severe of all the different types of aphasia. Patients who suffer from anomic aphasia have difficulty in using correct names for particular objects, people, places and events. Patients are usually aware of this problem and commonly compare it to the " tip of the tongue" sensation

people experience. Conduction Aphasia occurs when there is damage to the arcuate fasciculus.

The arcuate fasciculus is the neural pathway connecting the posterior part of the temporo-parietal junction with the frontal cortex. This pathway is the connection between Broca's area and Wernicke's area. Therefore, Conduction Aphasia interrupts the link between these two areas. Patients with Conduction Aphasia have good comprehension and speech is fluent.

Typically patients are able to express themselves through speech without trouble. The chief characteristic is difficulty in repeating words. Transcortical sensory aphasia is an extremely rare form of fluent aphasia. Transcortical sensory aphasia occurs when Broca's area, Wernicke's area, and the arcuate fasciculus are undamaged. However, they are cut off from the rest of the brain due to a vascular insufficiency because of problems at the end of the cerebral arteries. Patients suffer from poor comprehension but fluent grammatical speech.

They can communicate well and are capable of repetition. Patients do not use the correct word but use another word of similar content. For example, apple is mistaken for orange. Unlike transcortical sensory aphasia global aphasia does affect both Broca's and Wernicke's area.

In fact global aphasia is the most severe type of aphasia. It is caused by damage to both the Broca's area and Wernicke's area which are located in the frontal lobe and temporal lobe of the brain respectively. Bordering areas of the left hemisphere are affected as well. As in other types of aphasia the

patient has difficulty naming, repeating, understanding and producing fluent language.

The patient's ability to write and read may be also impaired. Global aphasia is usually due to the occlusion of the middle cerebral artery (Jacobs, 2005). In order to diagnose the different types of aphasia there are test which are performed. These tests are used to assess which areas of the brain have been affected by testing the different communication skills that have been lost. Some of these tests include Halstead Screening Test which is a brief assessment of language and Visio-spatial skills, and the Token test which is a general test of language comprehension using different tokens of varying sizes, colors and shapes. Two other tests are the Boston Diagnostic Aphasia Examination which assess comprehensive linguistic skills, and the Communicative Abilities in Daily Living which assess functional communication performance.

These tests involve naming objects, following different commands, answering questions, and repetition of words. Once aphasia has been diagnosed it is important to begin speech-language therapy as soon as possible. Treatment is usually tailored to the individual needs of the patient. Therapy strives to improve an individual's remaining abilities to communicate, to compensate for lost skills, as well as restoring as much communication abilities as possible. This is done by practicing exercises that involve reading, writing, following directions and repetition.

Therapy can also be computer-aided in which pictures are displayed for the individual to identify. References Aphasia. (2001). In Wikipedia [Web].

Wikimedia Foundation, Inc.

Retrieved December 6, 2006, from <http://en.wikipedia.org/wiki/Aphasia>

Bear, M. F. , B.

W. Connors, & M. A. Paradiso (2001). Neuroscience exploring the brain.

2nd ed. Baltimore, MD: Lippincott Williams & Wilkins. Browndyke, J. N.

(2002). Aphasia assessment. Retrieved December 5, 2006, from

Neuropsychology Central Web site: