



APHASIA – OVERVIEW AND TEACHING STRATEGIES

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Abstract:

Aphasia is an amalgamation of a speech and language disorders mainly produced by damage to the brain. Most often is caused by a cerebral vascular accident (CVA), which is also known as a stroke, aphasia can cause temporary and definitive impairments in speech and language. Other causes include brain tumours, traumatic brain injury, and progressive neurological disorders. The damage occurs typically in the left half of the brain. Individuals who experience damage to the right side of the brain may have additional difficulties beyond speech and language issues, like dysarthria, apraxia, or swallowing problems. Aphasia may causes difficulties in speaking, listening, reading, and writing, but does not affect intelligence.

Keywords: aphasia, speech and language disorder, teaching strategies

1. Introduction

Aphasia is a language disorder that occurs as consequences of damage to portions of the brain that are responsible for language. For most people, these are parts of the left side (hemisphere) of the brain, in Broca's and Wernicke's area. Aphasia usually occurs suddenly, often as the result of a stroke or head injury, but it may also develop slowly, as in the case of a brain tumour. The disorder impairs the expression and understanding of language as well as reading and writing. Aphasia may co-occur with speech disorders such as dysarthria or apraxia of speech, which also result from brain damage. Aphasia affects both spoken and written communication. It can hinder speaking, comprehension, reading, and writing. It can affect both expressive and receptive communication.

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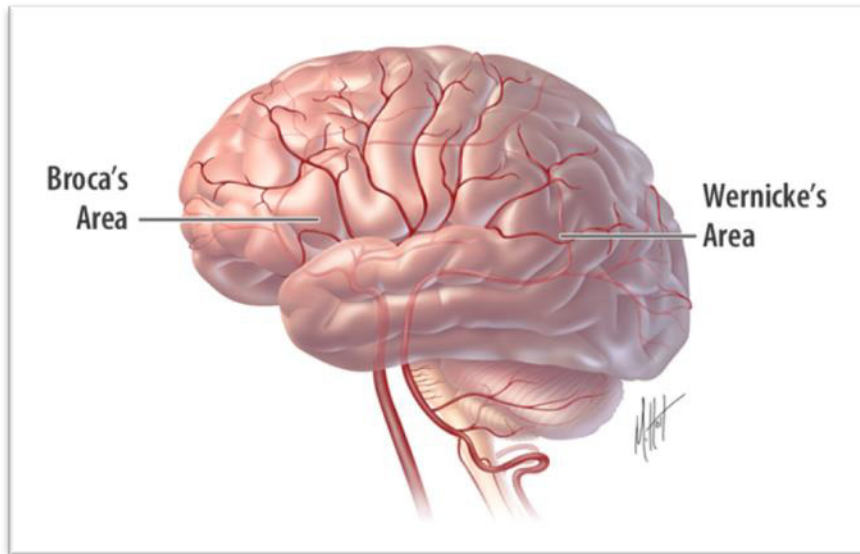


Figure1: Brain areas responsible of aphasia

Source: <http://www.strokecenter.org>

2. Types of Aphasia

Affected people with Broca's aphasia have damage to the frontal lobe of the brain. These individuals frequently speak in short, meaningful phrases that are produced with great effort. Broca's aphasia is thus characterized as a nonfluent aphasia.

Individuals affected Broca's aphasia often omit small words such as "is," "and," and "the." For example, a person with Broca's aphasia may say, "Walk dog" meaning, "I will take the dog for a walk." The same sentence could also mean "You take the dog for a walk," or "The dog walked out of the yard," depending on the circumstances. Individuals with Broca's aphasia are capable to comprehend the discourse of others to varying degrees. Because of this, they are often conscious of their problems and can become easily irritated by their speaking difficulties. Collateral damages associated with Broca's aphasia are right-sided weakness or paralysis of the arm and leg because the frontal lobe is also important for body movement.

The damage of the temporal lobe may result in a fluent aphasia that is called Wernicke's aphasia. Individuals with Wernicke's aphasia may speak in long sentences that have no meaning, add unnecessary words, and even create new "words." For example, someone with Wernicke's aphasia may say, "You know that smoodle pinkered and that I want to get him round and take care of him like you want before," meaning "The dog needs to go out so I will take him for a walk." Individuals with Wernicke's aphasia usually have great difficulty understanding speech and are therefore often unaware of their mistakes. These individuals usually have no body

weakness because their brain injury is not near the parts of the brain that control movement.

A third type of aphasia, global aphasia, occurs from damage to extensive portions of the language areas of the brain. Individuals with global aphasia have severe communication difficulties and may be extremely limited in their ability to speak or comprehend language. Because the extent of the brain damage many other severe physical impairments may occur.

3. Symptoms

Symptoms of aphasia vary from mild to severe. The effects of aphasia are determined by the areas of the brain that are damaged and the severity of that damage.

Expressive symptoms are problems using words and sentences. These symptoms can include:

- speaking in short, incomplete sentences or phrases
- speaking in sentences that can't be understood
- using wrong words or nonsense words
- using words in the wrong order

Receptive symptoms are problems understanding the words of others. These symptoms can include:

- the difficulty of understanding other people's speech
- the difficulty of following fast-paced speech
- misunderstanding figurative speech

In addition, most of the individuals with aphasia may also have one or more of the following problems:

Difficulty on generating language:

- experience difficulty coming up with the words they want to say;
- replace the intended word with another word that may be connected in significance (e.g., "circle" for "sphere") or unrelated (e.g., "tree" for "house")
- switch sounds within words (e.g., "wish dasher" for "dishwasher")
- use made-up words (e.g., "madeofwater" for "river")
- have difficulty putting words organized to create sentences
- gather together made-up words and real words effortlessly but without making sense

Difficulty understanding language:

- misinterpret what others say, especially when they speak fast (e.g., radio or television news) or in long sentences

- find it hard to comprehend talking in background noise or in group circumstances
 - misunderstand jokes and take the literal significance of figurative speaking
- Difficulty reading and writing:
- problematic reading forms, pamphlets, books, and other written material
 - difficult spelling and putting words together in order to write sentences
 - problematic understanding of number concepts (e.g., telling time, counting money, doing mathematical operations)

4. Diagnosis

Aphasia is usually first acknowledged by the physician who treats the individual for his or her brain injury, usually a neurologist. The physician typically completes tests that necessitate the following of commands, answer questions, name objects, and converse. If the physician suspects aphasia, the individual is often referred to a speech-language pathologist, who performs a comprehensive examination of the person's ability to understand, speak, read, and write.

To be diagnosed with aphasia, a person's speech or language must be significantly impaired in one (or several) of the four communication modalities following acquired brain injury or have significant decline over a short time period (progressive aphasia). The four communication modalities are auditory comprehension, verbal expression, reading and writing, and functional communication.

The speech-language pathologist evaluates the individual with a variety of tools to determine the type and severity of aphasia. It includes assessment of:

- auditory comprehension: comprehending words, interrogations, instructions, and sentences that are spoken
- verbal expression: producing automatic sequences (e.g., days of the week), mentioning objects, describing pictures, answering to questions, and having dialogues
- reading and writing: comprehending or producing letters, words, sentences, and paragraphs
- functional communication: using gestures, drawing, pointing, or other supportive means of communication when he/she has trouble getting a point across verbally.

5. Treatment

There are many types of treatment available for individuals with aphasia. The type of treatment depends on the type of disorder, needs and goals of the person with aphasia. Treatment may be provided in individual or group sessions. The speech-language pathologist works on activities to improve specific language skills affected by damage to the brain. He also helps the person with aphasia develop and use strategies to improve overall communication in a variety of situations (e.g., life participation approach to the treatment of aphasia). Later on in recovery, the speech-language pathologist may work with a vocational specialist to help the person return to work or school, if appropriate. The speech-language pathologist may also work with employers and/or educational specialists to implement the use of compensatory strategies in these settings and may work with them to modify the environment to meet language needs.

In some instances, an individual will completely recover from aphasia without treatment. This type of “spontaneous recovery” usually occurs following a transient ischemic attack (TIA), a kind of stroke in which the blood-flow to the brain is temporarily interrupted but quickly restored. In these circumstances, language abilities may return in a few hours or a few days. For most cases of aphasia, however, language recovery is not as quick or as complete. While many individuals with aphasia also experience a period of partial spontaneous recovery (in which some language abilities return over a period of a few days to a month after the brain injury), some amount of aphasia typically remains. In these instances, speech-language therapy is often helpful. Recovery usually continues over a 2-year period. Most speech-language pathologists believe that the most effective treatment begins early in the recovery process. Some of the factors that influence the amount of improvement include the cause of the brain damage, the area of the brain that was damaged, the extent of the brain injury, and the age and health of the individual. Additional factors include motivation, handedness, and educational level.

Aphasia therapy strives to improve an individual’s ability to communicate by helping the person to use remaining abilities, to restore language abilities as much as possible, to compensate for language problems, and to learn other methods of communicating. Treatment may be offered in individual or group settings. Individual therapy focuses on the specific needs of the person. Group therapy offers the opportunity to use new communication skills in a comfortable setting. Stroke clubs, which are regional support groups formed by individuals who have had a stroke, are available in most major cities. These clubs also offer the opportunity for individuals with aphasia to try new communication skills. In addition, stroke clubs can help the

individual and his or her family adjusts to the life changes that accompany stroke and aphasia. Family involvement is often a crucial component of aphasia treatment so that family members can learn the best way to communicate with their loved one.

Family members are encouraged to:

- simplify language by using short, uncomplicated sentences
- repeat the content words or write down key words to clarify meaning as needed
- maintain a natural conversational manner appropriate for an adult
- minimize distractions, such as a blaring radio, whenever possible
- include the person with aphasia in conversations
- ask for and value the opinion of the person with aphasia, especially regarding family matters
- encourage any type of communication, whether it is speech, gesture, pointing, or drawing
- avoid correcting the individual's speech
- allow the individual plenty of time to talk
- help the individual become involved outside the home
- seek out support groups such as stroke clubs.

6. Management

Most acute aphasia patients can recover some or most skills by working with a speech-language pathologist. This recuperation process can take two or more years and is most effective when begun quickly. After the onset of aphasia, there is approximately a six-month period of spontaneous recovery. During this time, the brain is attempting to recover and repair the damaged neurons. Therapy for aphasia during this time facilitates an even greater level of recovery than if no intervention was given at this time. Improvement varies widely, depending on the aphasia's cause, type, and severity. Recovery also depends on the patient's age, health, motivation, handedness, and educational level.

There is no one treatment proven effective for all types of aphasias. The reason that there is no universal treatment for aphasia is because of the nature of the disorder and the various ways it is presented, as explained in the above sections. Aphasia is rarely exhibited identically, implying that treatment needs to be catered specifically to the individual. Studies have shown that, although there is no consistency on treatment methodology in literature, there is a strong indication that treatment in general has positive outcomes. Therapy for aphasia ranges from increasing functional

communication to improving speech accuracy, depending on the person's severity, needs and support of family and friends. Group therapy allows individuals to work on their pragmatic and communication skills with other individuals with aphasia, which are skills that may not often be addressed in individual one-on-one therapy sessions. It can also help increase confidence and social skills in a comfortable setting.

A multi-disciplinary team, including doctors (often a physician is involved, but more likely a clinical neuropsychologist will head the treatment team), physiotherapist, occupational therapist, speech-language pathologist, and social worker, works together in treating aphasia. For the most part, treatment relies heavily on repetition and aims to address language performance by working on task-specific skills. The primary goal is to help the individual and those closest to them adjust to changes and limitations in communication.

Treatment techniques mostly fall under two approaches:

- Substitute Skill Model - an approach that uses an aid to help with spoken language, i.e. a writing board

- Direct Treatment Model - an approach that targets deficits with specific exercises

Several treatment techniques include the following:

- Copy and Recall Therapy (CART) - repetition and recall of targeted words within therapy may strengthen orthographic representations and improve single word reading, writing, and naming

- Visual Communication Therapy (VIC) - the use of index cards with symbols to represent various components of speech

- Visual Action Therapy (VAT) - typically treats individuals with global aphasia to train the use of hand gestures for specific items

- Functional Communication Treatment (FCT) - focuses on improving activities specific to functional tasks, social interaction, and self-expression

- Promoting Aphasic's Communicative Effectiveness (PACE) - a means of encouraging normal interaction between patients and clinicians. In this kind of therapy, the focus is on pragmatic communication rather than treatment itself. Patients are asked to communicate a given message to their therapists by means of drawing, making hand gestures or even pointing to an object

- Melodic Intonation Therapy (MIT) - aims to use the intact melodic/prosodic processing skills of the right hemisphere to help cue retrieval of words and expressive language

- Other - i.e. drawing as a way of communicating, trained conversation partners

The prognosis for life in a patient with aphasia depends on the cause of the aphasia. A left hemisphere glioblastoma may be associated with a very short life

expectancy, whereas a minor stroke may have an excellent prognosis. It is the underlying pathology, not the aphasia itself, that determines prognosis.

7. Prognosis

The prognosis for language recovery varies depending on the size and nature of the lesion and the age and overall health of the patient. Most patients, even elderly ones, experience some recovery in post-stroke aphasia, and some recover completely. In general, patients with preserved receptive language functions are better candidates for rehabilitation than are those with impaired comprehension.

The potential for functional recovery from primarily expressive aphasia such as Broca's aphasia after a stroke is excellent. The potential for recovery from Wernicke aphasia due to a stroke is not as good as that for Broca aphasia, but most of these patients show some recovery. The potential for recovery from aphasia due to an untreatable tumor or neurodegenerative disease is poor.

The prognosis for the patient to become independent is subtly different than that for language recovery. Patients may recover functionally and be able to live independently in spite of having a persisting aphasia, as long as they do not have other concomitant deficits such as the ability to use household tools (apraxia), often related to inferior parietal lobule or frontal involvement or other cognitive deficits.

Although it was once taught that, most improvement from aphasia occurs in the first six months after a stroke, most acknowledge that recovery can occur many months or even years after the initial stroke that caused the impairment. In severe, global aphasia, there may actually be more improvement in the second 6 months after the stroke than in the first 6 months.

Teaching aphasia reading strategies can help students with aphasia optimize their reading fluency and comprehension. The following reading strategies for students with aphasia will help your students with aphasia make maximum progress:

Learn everything you can about the student as a learner. Read his IEP and cumulative folder. Examine previous classroom and standardized assessments. Analyze previous writing samples. If possible, speak with teachers and other professionals who have worked with the student in the past. Administer learning inventories and interview the student to develop a profile of the student's strengths, deficits, needs and preferences as a learner.

8. Teaching Strategies for Students with Aphasia

- control a comprehensive sequence of valuations to determine the student's current state
- organizing the learning environment to minimize distractions for your students with aphasia
- practice simple language and unsophisticated sentences when collaborating with students with aphasia
- repeat words as necessary when speaking with students with aphasia
- present information using multiple modalities (orally, visually, kinesthetically)
- when teaching vocabulary, provide written words, definitions, synonyms and antonyms, examples of usage and pictorial representations
- openly teach semantics and syntax concepts. simplify them as much as possible
- break concepts down into small steps and repeat them as often as necessary to ensure your student comprehends them
- allow students with aphasia as much time as necessary, without interruption, in order to express themselves verbally
- create word choice boards
- use flashcards to build vocabulary
- because aphasia manifest in so many different ways, specific accommodations are determined on a case by case basis
- in working with aphasia students, be flexible, creative, and adaptive with resources
- outline class presentations and write new terms and key points on the blackboard
- repeat and summarize segments of each presentation and review its entirety
- consider giving assignments in both oral and written form to avoid confusion
- consider providing in advance, sample study questions for exams that illustrate the test format, as well as the content of the test. explain what constitutes a good answer and why
- encourage students to use campus support services (e.g., study skills training, academic tutorial assistance, peer support groups, etc.).
- students with written language difficulties may benefit from use of a word processor or typewriter for written assignments, extended time, and note taker or recorded lecture.

- students with visual processing or reading difficulties may benefit from recorded class materials, extended time, use of adaptive equipment in library, various presentation of visual material, and alternative testing formats. the student may require books on tape. allow the student to tape-record lectures
- visual perceptual difficulties can be addressed by preferential seating, allowing the student to indicate a test answer on the test or another sheet rather
- keep instructions brief and as uncomplicated as possible
- clearly define course requirements, the dates of exams and assignments. provide advance notice of any changes
- provide handouts and visual aids
- when appropriate, team a reader with a non-reading student during in-class assignments
- use more than one way to demonstrate or explain information
- have copies of the syllabus ready three to five weeks prior to the beginning of classes so textbooks are available for taping
- when possible, break information into small steps when teaching many new tasks in one lesson (state objectives, review previous lesson, summarize periodically)
- allow time for clarification of directions and essential information
- provide study guides or review sheets for exams
- provide alternative ways for the students to do tasks, such as dictations or oral presentations
- provide assistance with proofreading written work
- stress organization and ideas rather than mechanics when grading in-class writing assignments
- allow the use of spell-check and grammar-assisted devices
- when in doubt about how to assist the student, ask him or her
- allow the student the same anonymity as other students (i.e., avoid pointing out the student or the alternative arrangements to the rest of the class)

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