

CEREBROVASCULAR DISEASES AND LANGUAGE DISORDERS

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Stroke is the third most common cause of death worldwide (after coronary heart disease and all cancers combined) and the major cause of disability. The incidence of stroke varies somewhat from region to region, but has been accurately measured in only a few populations. In western countries incidence for people aged 55 years or more ranges from about 4.2 to 6.5 per 1000 population per annum. Approximately 20% of stroke patients die within one month and about 30% within one year. About one-third remain disabled; the remaining third either recover fully or regain independence of daily living. Post-stroke language disorders are frequent and include aphasia, alexia, agraphia and acalculia.

There are different definitions of aphasias, but the most widely accepted neurological and/or neuropsychological definition is that aphasia is a loss or impairment of verbal communication which occurs as a consequence of brain dysfunction. It manifests in impairment of almost all verbal abilities—abnormal verbal expression, difficulties in understanding spoken or written language, repetition, naming, reading and writing. During the history, many classifications of aphasia syndromes were established. For practical use classification of aphasias according to fluency, comprehension and abilities of naming it seems to be most suitable (nonfluent aphasias: Broca's, transcortical motor, global and mixed transcortical aphasia; fluent aphasias: anomic, conduction, Wernicke's, transcortical sensory, subcortical aphasia). Aphasia is common consequence of left hemispheric lesion and most common neuropsychological consequence of stroke, with prevalence of one third of all stroke patients in acute phase although exist reports on greater frequency.

Many speech impairments have a tendency of spontaneous recovery. Spontaneous recovery is most remarkable in first three months after stroke onset. Recovery of aphasias caused by ischemic stroke occurs sooner, and it is the most intensive in the first two weeks. In aphasias caused by hemorrhagic stroke, spontaneous recovery is slower and occurs in the period from the fourth to the eighth weeks after the stroke. The course and the outcome of the aphasia depend a lot on the type of aphasia. Regardless of the fact that a significant number of aphasias spontaneously improves, it is necessary to start the treatment as soon as possible.

The writing and reading disorders in stroke patients (alexias and agraphias) are more frequent than verified in routine exam, not only in the less developed and large neurological departments.

Alexia is an acquired type of sensory aphasia where damage to the brain causes a patient to lose the ability to read. It is also called word blindness, text blindness or visual aphasia. Alexia refers to an acquired inability to read caused by brain damage and must be distinguished from dyslexia, a developmental abnormality in which the individual is unable to learn to read, and from illiteracy, which reflects a poor educational background. Most aphasics are also alexic, but alexia may occur in the absence of aphasia and may occasionally be the sole disability resulting from specific brain lesions. There are different classifications of alexias. Traditionally, the alexias are divided into three categories: pure alexia with agraphia, pure alexia without agraphia, and alexia associated with aphasia («aphasic alexia»).

Agraphia is defined as the disruption of previously intact writing skills by brain damage. Writing in-

volves several elements – language processing, spelling, visual perception, visual-spatial orientation for graphic symbols, motor planning, and motor control of writing. A disturbance of any of these processes can impair writing. Agraphia may occur by itself or in association with aphasias, alexia, agnosia and apraxia. Agraphia can also result from “peripheral” involvement of the motor act of writing. Like alexia, agraphia must be distinguished from illiteracy, where writing skills were never developed.

Acalculia is a clinical syndrome of acquired deficits in mathematical calculation, either mentally or with paper and pencil. These language disturbances can be classified differently, but there are three principal types of acalculia: acalculia associated with language disturbances, including number paraphasia, number agraphia, or number alexia; acalculia secondary to visuospatial dysfunction with malalignment of numbers and columns, and a primary anarithmetria entailing disruption of the computation process.

Key words: Aphasia – Alexia – Agraphia – Acalculia – Stroke

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