

APHASIA IN STROKE PATIENTS-PATTERNS AND PROGNOSIS ADMITTED IN TERTIARY HEALTH CARE

General Medicine

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ABSTRACT

Background: Stroke is defined as the sudden development of a neurological impairment caused by a localised vascular cause. The term Aphasia is used to define the disturbance in the comprehension or production of language in written or spoken forms. **Aim:** The aim of this study is to evaluate characteristics of aphasia at the time of presentation in patients with acute stroke and evaluate the changes in language function after 6 months. **Materials and Methods:** This study enrolled 84 patients admitted with acute stroke in the Institute of Internal Medicine of Government General Hospital, Kadapa during the period from January 2021 to June 2022. **Summary And Conclusions:** Wernicke's aphasia, Broca's aphasia, Anomic aphasia, and Transmotor cortical aphasia are the most prevalent aphasic syndromes in acute stroke patients. Recovery in individuals with aphasia due to stroke is a dynamic process with the development of aphasia from one kind to another. Age and gender did not differ substantially among the various types of aphasia. All of the patients who were followed up on showed some improvement in language function, as measured by the Aphasia Quotient. In individuals with Wernicke's aphasia, there was no change in aphasia type, and age had no effect on aphasia recovery. Recovery was better in women whose aphasia progressed to a milder form more frequently.

KEYWORDS

INTRODUCTION:

Stroke is defined as the sudden development of a neurological impairment caused by a localised vascular cause (1). Stroke is the most common cause of disability and death worldwide. Community surveys in India have revealed a crude prevalence rate of "hemiplegia" affects 200 people per 100,000, accounting for almost 4.5 percent of all medical hospitalizations and 20% of all neurological admissions (2). Aphasia is one of the most debilitating stroke-related cognitive deficits (3). Aphasia is present in acute patients with a frequency ranging from 21% to 38%, and stroke accounts for the majority of new instances of aphasia seen in neurological practise. Aphasia is associated with a poor prognosis, including more severe physical, cognitive, and social handicap, as well as a greater mortality rate (5,6). The prognosis for aphasia remains poor: 6 months after a stroke, 32 percent to 50 percent of aphasics still have aphasia (5,6). As a result, it's critical to assess and treat post-stroke aphasia. The site of the lesion has long been thought to be the most important factor in determining aphasia features. However, several CT-based studies have shown that an unexpectedly large proportion of aphasias deviate from classic clinical-anatomic correlations (9,10). This suggests that other factors such as age, sex, and initial severity of stroke influence clinical outcome. The goal of this study is to investigate the characteristics of individuals with aphasia during the acute stage of stroke, the impact of age, sex, and stroke severity on aphasia type, and how the aphasia evolves over time.

AIM:

The aim of this study is to evaluate characteristics of aphasia at the time of presentation in patients with acute stroke and evaluate the changes in language function after 6 months.

OBJECTIVES:

- 1) To study the types of aphasia and the differences in age, sex characteristics of patients with different types of aphasia in acute stroke patients (within 2 weeks) admitted in Government General Hospital, Kadapa.
- 2) To study the pattern of recovery of aphasia in patients after 6 months of initial presentation and to determine the factors which affect the prognosis of the aphasia due to stroke.

Study Design: Observational prospective study

Study Setting :

This study was conducted in: the Department of General Medicine at Government Medical College and General Hospital, Kadapa.

Study Subjects:

This study was conducted in 60 patients admitted with acute stroke with aphasia in GGH KADAPA after excluding exclusion criteria

Study Period:

This study was conducted from January 2021 to June 2022 over a period of 18 months after the approval of hospital ethical committee.

Inclusion Criteria:

1. Duration of stroke less than 2 weeks
2. Single stroke (either ischemic or haemorrhagic)
3. Confirmation by CT or MRI

Exclusion Criteria:

- 1) Multiple or bilateral stroke
- 2) History of prior stroke
- 3) Head trauma
- 4) Delirium or Dementia
- 5) Previous psychiatric illness
- 6) Other causes of focal neurological deficits like tumor, infection, Inflammation.
- 7) Significant hearing or visual impairment

Ethical Clearance :

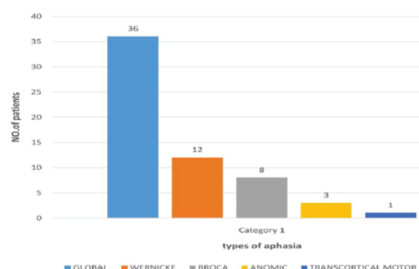
Institutional Ethical Committee approval was obtained before starting the study. The participants were explained that the data collected in this study would be used only for research purposes. The participants were explained about the freedom of withdrawal from the study at any time without penalty or loss of benefits.

Statistical Analysis :

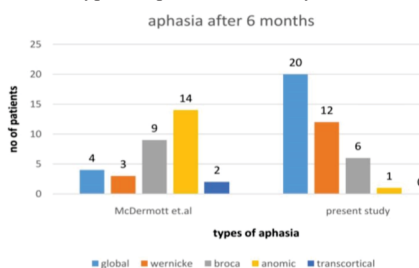
The collected data were checked for completeness before entering it into the Microsoft excel spreadsheet. The validation of the data was checked at regular intervals. Data analysis was performed using Statistical Package for Social Sciences (SPSS IBM). The data was presented in the form of numbers and percentages for qualitative variables and mean or SD for quantitative variables. Suitable statistical test (according to the nature and the distribution of data eg: paired t

test) was applied to assess the significance of study findings

RESULTS:



Graph 1: Different types of aphasia in this study



Graph 2 Comparison of aphasia types after 6 months

DISCUSSION:

Aphasia is one of the important causes of disability in post-stroke cases. Aphasia is observed with a frequency ranging from 21% to 38% in acute patients, and stroke accounts for most of the new cases of aphasia seen in neurological practice. The presence of aphasia is an index of poor prognosis, with more severe motor, cognitive, and social disability and higher mortality. Aphasia outcome remains poor - 32% to 50% of aphasics still suffer from aphasia 6 months after stroke (5,6). Therefore it is important to evaluate and treat post-stroke aphasia.

Mean age of Aphasia:

The mean age of patients with aphasia is 56.9 years and the mean age of patients without aphasia is 57.18 years. Studies like Wilson SM, Eriksson DK et al reported the mean age of patients with aphasia as 65.2 years and 63.8 years for patients without aphasia(41) This data is consistent with other studies, which have reported a higher prevalence of stroke in the elderly age group and males.

Risk factors:

There was a significantly higher prevalence of hypertension and heart disease in stroke patients with aphasia compared to patients with stroke and normal language function.

Hypertension was seen in 33.3% of the stroke patients, Diabetes was seen in 20.0% of the stroke patients Heart disease was seen in 8.3% of the stroke patients Smoking was a risk factor in 28.3% of the stroke patients Transient ischemic attack was present in 1.7% of the patients

In the study conducted by Wilson SM, Eriksson DK et.al Patterns of Recovery From Aphasia in the First 2 Weeks After Stroke, risk factors like hypertension was seen in 71% of the stroke patients with aphasia, diabetes was seen in 33.3% of the patients with aphasia, heart disease in 33.3% of the aphasia patients (12)

RISK FACTOR	No of patients (n=60)	%
Hypertension	20	33.3
Diabetes Mellitus	12	20.0
Heart disease	5	8.3
Smoking	17	28.3
TIA	1	1.7

Patterns of Aphasia :

A majority of the patients had global aphasia -36 patients (60%). This data is consistent with that of Godefroy et al who reported Global aphasia in 50% of their aphasic patients(7) ,Wernicke's 12 (20.0%),Broca's 8 (13.4%),

Comparing the patients whose aphasia type changed to those whose aphasia type remained the same at the end of 6 months study period

there was no significant difference in age suggesting that age was not a poor prognostic factor for aphasia recovery.

APHASIA TYPE	No of patients	%
Global	36	60.0
Wernicke	12	20.0
Broca	8	13.4
Anomic	3	5.0
Transcortical motor	1	1.6

More females had a change in aphasia type compared to males, suggesting that outcome of language function is better in females. According to the Copenhagen aphasia study outcome for language function was not influenced by age, sex, or type of aphasia.

Pizzamiglio et al. studied the sex differences in aphasia recovery and reported that although no initial sex difference was found in the severity of language disorders, females within the global aphasic group showed significantly greater improvement tests of language. They suggested that the better recovery in females was due to a bilateral representation of language function in the female brain compared to the male brain (11)

In this study, the increase in AQ in the first three months following The stroke was higher than in the following three months, indicating that maximum recovery of language function occurred in the first 3 months. This is consistent with findings reported by Kertesz et al and McDermott et al [14]. This improvement may be attributed to the resolution of acute ischemic changes like perilesional edema and restoration of blood flow to the ischemic penumbra allowing these regions of the brain to function effectively.

Mechanisms of Recovery In Post-stroke Aphasia

The mechanisms of language recovery have been a subject of several studies. The resolution of acute cellular derangements like edema, and restoration of blood flow to the ischaemic penumbra explains the recovery in the first few days. The finding of excessive activation of homologous right-sided brain regions, in aphasics compared with the normal subject has suggested the role of this non-dominant hemispheric activation in the recovery process.

Factors Influencing Post-stroke Aphasia

Factors determining the occurrence, severity, and outcome of post-stroke aphasia remain a subject of controversy. The higher prevalence of stroke in the elderly, and the increasing rate of stroke survivors have contributed to the increasing prevalence and incidence of aphasia in the geriatric age group. Language functions are hypothesized to be more likely to be highly lateralized in males and to be represented in both cerebral hemispheres in females. It has been suggested that a more bilateral representation of language functions in the female brain may account for this greater improvement in language improvement in female aphasic patients.

CONCLUSION:

1. There was a significant association of hypertension in stroke patients with aphasia.
2. Global aphasia is the most common type followed by Wernicke's, Broca's, Anomic and transcortical aphasias.
3. In 33% of the patients, type of aphasia has converted to a less severe type. The recovery in the language function was assessed using the change in AQ values.
4. Non-fluent aphasias may change into fluent aphasias.
5. Wernicke's aphasia patients showed no change in the type of aphasia.
6. Younger people tend to show maximum recovery than elderly people.
7. There is no gender difference in the language recovery.
8. Broca's aphasia is seen in younger patients.
9. The rate of language recovery (change in AQ) was found to be inversely associated to the stroke severity (using NIH stroke scale).
10. The greatest improvement in language function occurs within the first three months following stroke onset.

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