



REVIEW ON CAUSES OF CVA IN WERNICKE'S APHASIA

Shaik Sameena*

[Pharm D], Department of Pharmacy, AM Reddy Memorial College of Pharmacy, Petlurivaripalem, Narasaraopet.

***Corresponding Author: Shaik Sameena**

[Pharm D], Department of Pharmacy, AM Reddy Memorial College of Pharmacy, Petlurivaripalem, Narasaraopet.

Article Received on 23/12/2021

Article Revised on 13/01/2022

Article Accepted on 04/02/2022

ABSTRACT

Cerebrovascular attack is caused by either Ischemic or Hemorrhagic stroke. The major chief complaints in CVA patients includes Aphasia and Slurred speech which is caused due to formation of Infarcts or lesions in Frontal lobe, Parietal lobe, Temporal lobe. Type of Aphasia can be known by Assessment tools such as Multilingual Aphasia Examination, Boston Diagnostic Aphasia Examination. Site or Regions of Infarcts can be known by MRI and CT scans. Infarcts of Wernicke's Aphasia are seen in Parietal and Temporal lobes due to inferior middle cerebral artery occlusion [MCA] most often that develops in older people. This review article has reviewed 49 patients with CVA and chief complaints of Aphasia are taken as subjects with age of 25-89, out of which 38 patients with Ischemia stroke developed Infarcts under Group I. 11 patients with Hemorrhagic stroke of which 7 develop Intra cerebral Hemorrhage [ICH] under Group II and 4 develop Aneurysmal Subarachnoid hemorrhage [SAH] under Group III. The main causes of Wernicke's Aphasia in older people caused by brain injury or lesions in posterior part of brain due Inferior MCA occlusion.

KEYWORDS: CVA, Wernicke's aphasia, Middle cerebral artery, Parietal and temporal lobe.

INTRODUCTION

➤ Wernicke's Aphasia is caused due to formation of Infarcts in lateral temporal lobe of area 22 because of these infarcts there is reduction in blood supply from Inferior MCA to posterior region. Infarcts or lesions spreads to the inferior parietal lobe of area 40. Ischemic stroke is the leading cause of aphasia. 78% of CVA patients develop Wernicke's Aphasia due to Ischemic stroke of either thrombotic/embolic stroke, while 14% of CVA patients due to Hemorrhagic stroke of ICH and 8% of CVA patients due to Hemorrhagic stroke of SAH followed by the surgery of aneurysm which was result from SAH.

SUBJECTS AND METHODS

✓ 49 Patients with CVA and chief complaints of Aphasia are taken at university of Iowa hospitals and clinics [1980 & 1988]. An investigator conducted neurophysiological studies with in 14 days after development of stroke. In order to classify the type of aphasia a patient develop after stroke can be known by Assessment tool such as Multilingual aphasia examination and Boston diagnostic aphasia examination which is dependent on fluency, language, repetition and defect in sentence formation are categorized as severe stage and Anomia, Alexia, Agraphia are categorized as moderate to severe stage.

✓ The region or site of lesion or infarcts can be investigated by cranial CT/MRI scans done in 11 patient and CT scan done in 1 patient who are with CVA and chief complaint of Aphasia with in 7 days of time period. Total of all 49 patients, 30 patients had 3-D Echo, 24 had cerebral angiogram and 22 had duplex us studies of extra cranial carotid arteries.

RESULT

- 49 Patients of CVA are chosen and Neuroimaging studies such as CT and MRI scans are done in order to know the Ischemic or Hemorrhagic stroke.
- 38 patients under group I developed Ischemia [Infarcts] and 11 patients developed hemorrhage, 7 patients under group II with ICH and 4 under group III with Aneurysmal SAH. Lesions often develop in left posterior lobe and middle temporal gyrus.

GROUP I: 38 patients with 25-89 years are taken out of which 26 are men and 12 are women with CVA secondary to Aphasia along with other comorbidities such as HTN and symptoms of hemianopsia, hemisensory loss.

➤ **Results of CT scan:** Investigated in 38 patients

Region of Infarct	No. of Patients Developed Infarcts
Left temporal parietal	35
Left frontal	1
Sub cortical [Multiple Infarcts]	1
No infarct developed	1

➤ **Results of Angiogram or Arteriography:** Investigations carried out in 16 patients out of which 13 patients developed abnormalities

Blood Occlusion Site	No. of Patients
Left MCA	2
Posterior Parietal Artery	1
Internal Carotid Artery	3
Artherosclerotic stenosis	7

➤ **Results of Echocardiography:** 31 patients had developed abnormalities out of 38 patients

Abnormality Site	No. Of Patients
Left ventricular thrombosis	2
Mitral valve regurgitation	1
Left atrial enlargement	11
Left ventricular hypertrophy	7
Valve abnormality	10

Ischemic stroke of emboli was diagnosed in 21 patients out of 38 patients.

GROUP II

- ✓ 7 Patients with 38-89 years out of which 3 are men and 4 are women with CVA secondary to Aphasia along with other symptoms such as hemiparesis and homonymous hemianopsia
- ✓ The result of CT scan revealed left temporal-parietal hemorrhage in 7 patients
- ✓ The result of angiogram revealed Dural AV malformation in 1 patient and Avascular masses in 3 patients.

Cause of hemorrhagic stroke	No. of patients
Anticoagulant therapy	3
Amyloid angiopathy	2
HTN	1
Dural AV malformation	1
Unknown	2

GROUP III

- ✓ 4 patients out of which 1 male and 3 female with 55-76 years develops Wernicke's aphasia after aneurysm surgery following SAH.
- ✓ 1 patient had vasoconstriction of left anterior and MCA occlusion of posterior branch of MCA after onset of Aphasia as complaint from CVA, results are revealed in angiogram. 3 patients had direct aneurysm clipping, patient with aneurysm in inter cavernous carotid artery had carotid ligation.

Post OP scan [aneurysm surgery]

Results	No. Of Patients
Infarcts	3
Vasoconstriction of arteries	2
Ischemia	1

Operated aneurysm

Region	No. of Patients
Left internal carotid artery	1
Posterior communicating artery junction	1
Left MCA	1
Inter cavernous carotid artery	1

DISCUSSION

- ✓ Neuroimaging tests and Neuropsychological tests are done to patients with in 14 days after onset of CVA in order to know the type of aphasia a patient developed. 20-25% of patients develop aphasia as a result of acute stroke, 13% patients developed Wernicke's aphasia
- ✓ Taking an average of 100%, 78% developed cerebral infraction out of which 55% with embolic infraction with a cause of cardiac problem and 26% of infarcts are developed unknown cause from group I
- ✓ Development of Aphasia as secondary to CVA due to hemorrhage is rare and is categorized as 14% of ICH 8% of SAH. In ICH 3 out of 7 patients develop homonymous hemianopsia in group II whereas 1 out of 38 patients in group I developed.
- ✓ In SAH 8% develop aphasia after aneurysm surgery due to secondary vasospasm.

CONCLUSION

- Male develop aphasia as secondary to CVA than female and increase in age which causes brain to injury in various area in language zone which leads to an impairment in cognitive behavior, speech organization.
- Older people develop brain injury in posterior part of brain which is the main cause for Wernicke's aphasia the reason is that increasing age causes proximal MCA to horizontal and may course to inferior because of this the blood supply to brain decreases in posterior part of brain due to occlusion in inferior MCA.

REFERENCES

- Etiology of stroke in patient with Wernicke's aphasia & apos; aphasia by LE Knepper.1989. cited by 31.
- Neuroanatomy, Wernicke's aphasia[review]- kinnan javed et.at javed k
- Aninda. B. Acharya, Micheal Wroten .Wernicke's aphasia[updated 2021 aug 11] In :stat pearls [internet]. Treasure Island FL: [stat pearls publish; 2021 jan]

- Benton AL: Multilingual Aphasia Examination Iowa city, Iowa, Department of neurology, University of Iowa, 1976.