

**Original article:**

## **Study of co-morbidities associated with acute Cerebrovascular accident to the emergency medicine**

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### **Abstract**

**Introduction:** Cerebrovascular accident is the commonest cause of chronic adult disability. The lifetime risk of CVA after 55y of age is 1 in 5 for women and 1 in 6 for men. Almost four-fifth of all strokes occur in developing countries.

**Material and methods:** It was prospective observational study was carried out on patients in the Emergency Medicine department at Dr. D. Y. Patil Medical college, Hospital & Research Centre, Pimpri, Pune. Depending on the number of patients presenting to EM with CVA, a total of 70 cases were studied.

**Results and Conclusion:** From our study , we found , maximum (41.4%) had right sided weakness, 34.3% had left side weakness and 22.9% had no upper limb weakness. Maximum (38.6%) had right sided weakness, 34.3% had left side weakness and 25.7% had no lower limb weakness.

**Keywords:** co-morbidities, Cerebrovascular accident, emergency medicine

### **Introduction:**

Cerebrovascular accident is the commonest cause of chronic adult disability. The lifetime risk of CVA after 55y of age is 1 in 5 for women and 1 in 6 for men. Almost four-fifth of all strokes occur in developing countries.<sup>1</sup> According to WHO 2009 report in India prevalence is 90-222 per lakh population and 6,398,000 DALYs (Disability Adjusted Life Years)<sup>6</sup> Strokes cost more than \$70 billion annually, and has a devastating effect on the quality of life of the patients and their caregivers.<sup>7</sup> Co morbidities are common in stroke patients, most of patients have a history of hypertension and about one-third having diabetes mellitus.<sup>2</sup> Peripheral vascular disease, coronary artery disease and other arterial diseases are common too. The evaluating physicians have to be vigilant to other emergency conditions that can present with stroke.<sup>3</sup>

Emergency medicine in India is a nascent field and not many studies are available on the clinical profile of patients presenting to Emergency department with acute CVA. Early diagnosis of the type of CVA and timely intervention will significantly improve the outcome and prognosis of the patients. Also, identifying the risk factors and preventing them at the primary level will further reduce the risk of subsequent attacks. With this background present study was carried out with the aim to assess clinical profile of the patients presenting with acute Cerebrovascular accident in the emergency unit of a tertiary care hospital.<sup>4</sup>

### Material and methods:

It was prospective observational study was carried out on patients in the Emergency Medicine department at Dr. D. Y. Patil Medical college, Hospital & Research Centre, Pimpri, Pune. Depending on the number of patients presenting to EM with CVA, a total of 70 cases were studied. purposive sampling- All consecutive cases who meet the inclusion criteria included in study till desired sample size was obtained.

### Inclusion criteria:

- Patient presenting with clinical features of CVA within 48 hours
- Age  $\geq$ 18yrs

### Exclusion criteria:

- Patients below 18.
- Trauma.
- More than 48hours of onset of symptoms.
- Past history of CVA.
- CVA due to venous thrombus.
- Transient ischemic attack (TIA)

CVA cases confirmed on CT/MRI brain and admitted in emergency medicine within 48 hours of onset of stroke fulfilling inclusion and exclusion criteria were enrolled as study subjects. Detailed history, clinical examination and relevant laboratory investigation were carried out as per the proforma.

### Results:

In our study , maximum subjects (34.3%) were in age group of 61-70yrs followed by 22.9% in 41-50yrs. Younger age (till the age of 40yrs) were one fifth (21.5%) of study population. Age range of subjects was 18-81yrs and mean age of  $53.33 \pm 15.81$  years.

Gender wise distribution of study subjects. Three fourth (75.7%) were male and one fourth were female. M: F was 3.1:1

Maximum (72.9%) subjects were from urban area and 27.1% were from rural area.

**Table 1: Facial deviation findings among study subjects**

Facial deviation	Frequency	Percent
No	46	65.8
Left	10	14.3
Right	14	20
Total	70	100

Table shows facial deviation findings among study subjects. Maximum 65.8% had no facial deviation while 20% had right and 14.3% had left facial deviation.

**Table 2: Weakness presentation among study subjects**

Weakness	Frequency	Percent
One side	54	77.1
Both side	2	2.9
No	14	17.1
Total	70	100

Table shows findings of weakness among study subjects. More than two third (77.1%) had one side body weakness and 17.1% had no weakness of either side.

**Table 3: Distribution of weakness of upper limb among study subjects**

Weakness of Upper limb	Frequency	Percent
Right	29	41.4
Left	24	34.3
B/L	1	1.4
No	16	22.9
Total	70	100

Table shows findings of upper limb weakness among study subjects. Maximum (41.4%) had right sided weakness, 34.3% had left side weakness and 22.9% had no upper limb weakness.

**Table 4: Distribution of weakness of lower limb among study subjects**

Weakness of Lower limb	Frequency	Percent
Right	27	38.6
Left	24	34.3
B/L	1	1.4
No	18	25.7
Total	70	100

Table shows findings of lower limb weakness among study subjects. Maximum (38.6%) had right sided weakness, 34.3% had left side weakness and 25.7% had no lower limb weakness.

**Table 5: Glasgow Coma Scale (GCS) score among study subjects**

GCS	Frequency	Percentage
<8	4	5.71
>8	66	94.29
Total	70	100

Table shows findings of Glasgow Coma Scale (GCS) score among study subjects. Most of the subjects (94.3%) had score >8 and very few 5.7% had score <8.

### **Discussion:**

Stroke is a disease associated with a high rate of disability and death. The World Health Organization defines stroke as a vascular event that occurs suddenly, leading to focal or global cerebral dysfunction, which might last at least 24 hours and may lead to death. It causes disabilities and psychosocial economic problems in family members of stroke victims. Thus, prevention and treatment of strokes is a significant public health concern.<sup>5,6</sup>

In our study, 10 out of 70 study subjects were given tPA out of which 8 (80%) showed drastic improvement post thrombolysis. Final outcome in our subjects showed 8 (11.4%) subjects showed drastic improvement, 55(78.5%) had gradual improvement, 6(8.5%) continued to be in same state (1 was thrombolysed, 2 underwent surgery and 3 had received antiplatelet) at the time of admission and 1(1.4%) had worsening of condition during ED treatment observation. Four out of 70 required intubation in the view of GCS  $\leq$ 8, and 12(17%) had uncontrolled diabetes.

Several recently reported studies of acute treatments for stroke have generated controversy because there were inconsistencies between various outcomes within each study.<sup>7,8</sup> For example, the results of the European

Cooperative Acute Stroke Study (ECASS) I study of recombinant tissue plasminogen activator (rtPA)<sup>9</sup> were not positive; however, analysis of the same data using the outcome measures that were used in the National Institute of Neurological Disorders and Stroke (NINDS) rtPA trial produced favourable findings.<sup>10</sup> Study by Duncan PW et al<sup>11</sup> also showed there is no consensus on the level of outcome to be used, the method of measurement to be used, or the most appropriate timing of the assessment.

In cases of ICH, because of the uncertainty in prognostication in the early phase, early aggressive management is recommended after ICH, and treatment limitations should not be based solely on prognostic models. Early prognostication should not be attempted except when clear signs of non-confounded irreversible brain damage are present, such as an absence of brain stem reflexes. However, patients with ICH having a GCS  $\leq 8$ , massive ICH with midline shift, expanding hematoma, ICH with intraventricular extension have poor prognosis.<sup>12</sup>

#### **Limitations of our study:**

1. Cases of venous CVA were not included as the pathophysiology and presentation are different from AIS & ICH.
2. Lack of EVT and mechanical thrombectomy as treatment option in our set-up due to the patient's financial constraints.
3. Small sample size

#### **Conclusion:**

From our study, we found, maximum (41.4%) had right sided weakness, 34.3% had left side weakness and 22.9% had no upper limb weakness. Maximum (38.6%) had right sided weakness, 34.3% had left side weakness and 25.7% had no lower limb weakness.

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Date of Publishing: 05 June 2021

Author Declaration: Source of support: Nil, Conflict of interest: Nil

Ethics Committee Approval obtained for this study? YES

Was informed consent obtained from the subjects involved in the study? YES

For any images presented appropriate consent has been obtained from the subjects: NA

Plagiarism Checked: Urkund Software

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DOI: 10.36848/IJBAMR/2020/29215.55640