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Research Paper

Study of 100 Cases of Cerebrovascular Accidents and Correlation with Clinical Scoring System and Radio Imaging

Medical Science

KEYWORDS : Cerebrovascular accidents, Siriraj Score, Stroke

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ABSTRACT

AIM: To find out prevalence of stroke due to various aetiology and correlation of Siriraj score with scan findings and outcome in cases of stroke patients. MATERIAL AND METHODS: A prospective study consisting of 100 patients of CVA admitted in our tertiary care centre, we obtained detailed history, clinical examination, routine investigation and CAT scan and we compared the results with CAT scan reports and siriraj scoring system. RESULTS: Prevalence of CVA more in males, Hypertension being most common risk factor, headache, high Diastolic BP act as predictor of haemorrhage. CONCLUSION: In this study there was no correlation between siriraj score and clinical outcome of patients and patients diagnosed as haemorrhagic stroke have poor outcome.

INTRODUCTION:

CV Stroke is a major cause of mortality all over the world and third leading cause of medically related deaths and 2nd most frequent cause of neurological morbidity with prevalence of 1.54/1000 population and death 0.6/1000 in Indian population.

Cerebrovascular accidents or stroke is defined as an acute focal neurological deficit lasting more than 24 hours resulting from the disease of cerebral vessels. Major causes are thrombo-embolic event and haemorrhage due to leaking of blood vessels. Both types have different clinical features as well as different prognostic and therapeutic implications. So, quick and correct diagnosis is very important of management and prognosis of patient. Along with clinical features, various scoring systems like siriraj score, Guy's score, greek score, allen score which are useful where scan and other investigations are not available. In recent years, easy availability of CAT Scan, MRI and lack of awareness about specificity and sensitivity of these scoring system, scoring systems are not popular. Among the various scoring system, Siriraj scoring system is relatively easy and can be calculated on admission with simple clinical criteria. Diagnostic sensitivity for haemorrhage and infarct are 89.3% and 92.3% respectively, with overall predictive accuracy of 90.3% as reported in Poungvarin et al, Bangkok study, Thailand.(16) As in our country, many patients from Lower Socio Economic Class and elderly who don't afford cost of scan and serious clinical situation of the patients, this scoring system can be used to find cause and judge prognosis. In this study of 100 cases of CV accidents in our hospital (in whom radio-imaging study in form of CAT scan/ MRI was possible) to diagnose them by siriraj score and then by radio-imaging to find out accuracy of clinical methods.

AIMS AND OBJECTIVES:

To find out prevalence of stroke due to various aetiology and correlation of score and outcome in cases of stroke patients.

MATERIAL AND METHODS:

A prospective study consist of 100 patients of CVA admitted in our tertiary care centre, in each patients, at the time of admission detail clinical history, physical examination carried out with special attention to mode of onset, presence of diastolic hypertension, level of consciousness, abnormalities of cognitive function, and degree of motor weakness. Risk factors like age, sex, family history, hypertension, Ischemic Heart Disease, Valvular Heart Disease, Transient Ischemic Attack, smoking, obesity were noted. General examination including vital data, thorough CNS examination, and quick examination of other systems noted along with all routine investigations.

Clinical outcome is "good" if there is survival with improvement in focal neurological deficit, while "poor" if there is death or worsens or no improvement in focal neurological deficit.

DISCUSSION:

100 consecutive cases of stroke fulfilling our criteria were taken up for study. Even though there was no selection bias, there was near equal representation of both gender and Patients of all adult groups were studied.

The diagnosis of pathological subtypes of stroke is the most important prerequisite for proper management of stroke. Although CAT scan is the gold standard method for diagnosis of ICH, it's not available to a large section of the population living in the periphery. In these areas, the clinical scoring system may play a role in D/D of acute stroke syndrome and to some extent selectively utilization of higher diagnostic facilities.

The clinical parameters used in the scoring systems lay particular emphasis on apoplectic onset, headache, vomiting and LOC, which are commonly seen in ICH. These cases are predicted by clinical scores to have haemorrhage and may lose benefit of early anti platelet therapy. In our study we found that a significant 21 patients could not be certainly diagnosed as infarct and if CAT scan was not obtained, we would not have started anti platelet therapy in these patients. This findings stresses selectivity and thoughtful utilization of siriraj score particularly when result are equivocal, CAT scan becomes more desirable.

If the clinicians solely depend on these scoring system and start anti platelet therapy, sometimes may end up in the disastrous re-haemorrhage resulting from further leak from ruptured and sealed vessels. Thus if we plan to commit some anti-platelet therapy, it is better to have CAT scan or other more specific test rather than clinical scoring system.

In our study, 37 patients had poor outcome, out of which 21 (56.75%) were alert, 9 (24.32%) drowsy/stuperous and 7 (18.91%) in semi coma/coma. Those patients who were in coma/semi coma had poor outcome, total 10 patients were in semi coma/com out of which 3 patients were died and rest has poor outcome, and 3 patients would died had haemorrhage on Cat scan and rest 7 patients has infarct involving multiple lobes of brain.

In our study total 26 patients diagnosed as haemorrhagic infarct on CAT scan, out of which 4 (15.38%) patients were died and 20 (76.92%) had poor outcome that indicates that outcome in haemorrhage is not good.

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In our study there was no correlation between Siriraj score and clinical outcome of patients.

SUMMARY:
In this prospective study of 100 cases of cerebral stroke, clinical diagnosis of stroke in to haemorrhage vs. non haemorrhagic stroke was first done on admission by siriraj score and then compared by conforming it by CAT scan.

The summary of salient features of the study is as follows:

- Male: female ration was 3:2 and peak incidence in the age group 41-70 years.
- Hypertension (50%), smoking (33%), IHD (13%), DM (15%) were important risk factors in that order.
- Headache was a better prognostic indicator of haemorrhage as compared to vomiting because 26.92% patients of haemorrhage had headache while 19.23% patients of haemorrhage had vomiting.
- Atheroma markers, TIA and heart disease predisposes to ischemic stroke but less to haemorrhage
- High Diastolic BP was one of the predicting factor for haemorrhage
- Out of 100 cases imaging studies demonstrate non haemorrhagic stroke in 74 and haemorrhagic stroke in 26 patients
- Out of 100 cases a/c to siriraj score system 58 were clinically diagnosed as non haemorrhagic stroke, 21 were haemorrhagic stroke and 21 had equivocal result
- In our study we found that the SSS had sensitivity if 91.37% for infarction and 76.19% for haemorrhage with predictive accuracy of 87.34%.

- **OBSERVATION:**

100 patients with diagnosis of acute CVA were studied clinically and with CAT scan. We observed following facts.

- **Table 1. Age and sex distribution:**

AGE DISTRIBUTION	MALE	FEMALE	TOTAL
25-40	7	1	8
41-55	15	6	21
56-70	29	24	53
71-85	7	9	16
>85	2	0	2
TOTAL	60	40	100

- As seen in table, 55-70 year age group was most vulnerable period for CVA, significant 30%
- Patients were <50 years of age. Prevalence is more in male than in female, with ratio of 3:2.

- **Table 2. CAT scan diagnosis in the study:**

CAT scan	No
Infarct	74
Haemorrhage	26
Total	100

- CAT scan findings were diagnostic of infarct in 74 patients, while 26 were having haemorrhagic stroke.

- **Table 3. Showing distribution of the variables included in siriraj stroke score:**

Variables	No of pts	Diagnosis by CAT scan	
		Infarct	Haemorrhage
LOC			
Alert	79	65(87.83%)	14(53.84%)
Drowsy/stuperous	11	6(8.10%)	5(19.23%)
Coma/ semicoma	10	3(4.05%)	7(26.92%)
Vomiting	11	6(8.10%)	5(19.23%)
Headache	09	2(2.70%)	7(26.92%)
Atheroma marker	28		
DM	15	13(17.56%)	2 (2.70%)
IHD	13	11(14.86%)	2 (2.70)
Interittent claudication	0	0	0
Diastolic BP			
<80	11	9(12.16%)	2(2.70%)
81-100	42	39(52.70%)	3(11.53%)
101-120	30	18(24.32%)	12(46.15%)
121-140	12	7(9.45%)	5(19.23%)
140-160	5	1(1.35%)	4(15.38%)

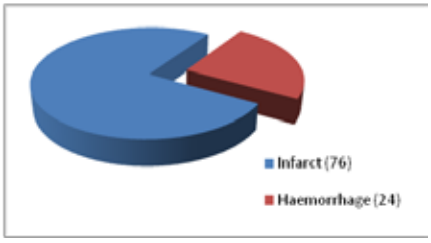
- Vomiting and headache were complaint by only 11 & 8 patients which were found to be present in 19.23% and 26.92% respectively, While prevalence of these symptoms very less in infarct. All 11 patients who had vomiting, 5 patients had ICH and 6 had infarct. Scan of9 patients with headache, 7 had haemorrhage and 2 had infarction, Headache was a predictor of haemorrhage than vomiting.
- Four patients who had diastolic BP of 160 mmHg had haemorrhage and 1 had infarction. Total 17 patients who had diastolic BP >120 mmHg, out of which 8 (45.05%) had infarct and 9 (52.94%) had haemorrhage in CAT scan. Raised diastolic BP considered as a predictor of haemorrhagic stroke.

- **Table 4: Comparision of various parameters between heamorrhage and infarct:**

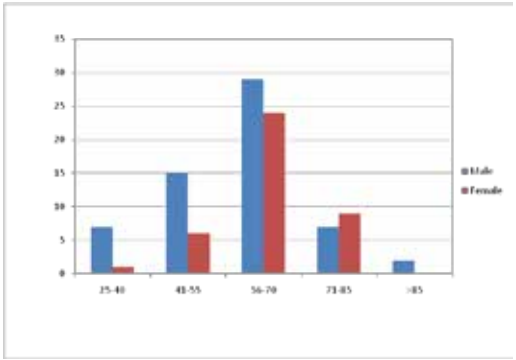
PARAMETER	SIRIRAJ STROKE SCORE	
	INFARCT	HAEMORRHAGE
SENSITIVITY	91.37%	76.19%
SPECIFICITY	76.19%	84.12%
PPV	91.37%	76.19%
NPV	76.19%	84.12%
EFFICIENCY	87.34%	88.09%

- Out of 72 cases of infarction, siriraj stroke score had made a correct diagnosis in 53 cases, incorrect diagnosis in 16 cases and was uncertain in 5 pts.
- Out of 26 patients with haemorrhage the siriraj score had made a correct diagnosis in 16 patients and incorrect diagnosis 5 cases and was uncertain in 5 cases.
- We did not observe any positive correlation between siriraj score and clinical outcome of patients neither in infarct nor in haemorrhage.

CAT scan diagnosis in the study:



Age and Sex wise distribution of the patients:



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