

## Clinical profile of cerebrovascular stroke and its correlation with Siriraj scoring system



### Medical Science

**KEYWORDS :** Stoke, Siriraj score

**DR. JITENDRA. H. PARIKH**

Associate professor (Department Of Medicine B.J. Medical College, Ahmedabad, Gujarat.)

**DR. MEETA.G.NANAVATI**

Professor & HOD (PATHOLOGY) GMERS medical college Gandhinagar

**DR. AMIT SOJINTRA**

M.D (MEDICINE) Department Of Medicine B.J. Medical College, Ahmedabad, Gujarat.

### ABSTRACT

#### Introduction:

Stroke is a common and frequently devastating disorder that remains the 3rd leading cause of death in western countries after coronary heart disease and a major cause of disability in elderly. The most accurate method of diagnosis of stroke is CT scan which is an accurate safe and non invasive investigation .But due to lack of such facilities at many peripheral centres and to improve clinical accuracy for such differentiation, various scoring system have been developed. This study was carried out to develop a simple , reliable and safe diagnostic tool for acute stroke syndromes in a setting where CT scan was not readily available and to validate the accuracy of Siriraj Score with regarded to pathological types of stroke.

#### AIMS:

- 1) To study clinical profile of acute cerebrovascular stroke and evaluate patients clinically
- 2) To attempt to improve accuracy in diagnosing the acute stroke syndrome based on clinical variable at the bedside.
- 3) To study the sensitivity and specificity of Siriraj Scoring and to validate the accuracy of SSS in acute stroke syndrome

#### MATERIAL AND METHOD:

This study included 50 patients who presented as CV stroke and admitted in civil hospital ahmedabad during period of 2010-2011. Detail history were taken. All the patients were subjected to CT scan immediately. From the records, variable Siriraj score was calculated.

#### CONCLUSION:

The Siriraj score was preferred to help clinicians in making decisions while waiting for CT scan or otherwise. So at centre where advances facilities of CT OR MRI are not available and clinical sense is the only way of diagnosis it is certainly of help in those remote places. This help in management of patients with stroke.

#### Introduction :

Stroke is a common and frequently devastating disorder that remains the 3<sup>rd</sup> leading cause of death in western countries after coronary heart disease and a major cause of disability in elderly. Approximately 85% of strokes are due to ischemia and infarction and 15% are due to haemorrhage but in Asian Countries haemorrhage contributes a large part. Diagnosis and onset of treatment has to be immediate because of tolerance of brain tissue to ischemia is lower than any other tissue. Though most accurate method of diagnosis of stroke is CT scan which is an accurate safe and non invasive investigation .But due to lack of such facilities at many peripheral centres and to improve clinical accuracy for such differentiation, various scoring system have been developed. This study was carried out to develop a simple , reliable and safe diagnostic tool for acute stroke syndromes in a setting where CT scan was not readily available and to validate the accuracy of Siriraj Score with regarded to pathological types of stroke.

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#### MATERIAL AND METHOD:

This study included 50 patients who presented as CV stroke. Detail history taken. All the patients were subjected to CT scan immediately. Patients of transients ischemic attacks, subarachnoid haemorrhage and head injury were excluded from this study. From the recorded variable Siriraj score was calculated. SSS <sup>25</sup> was calculated according to the method in the original study by Pongvarin et al 25 using five variable. This study and scoring system was developed by Professor Pongvarin Nippon and colleague At Siriraj Hospital , Bangkok in 1984-1985.

#### Results:

**TABLE 1: Age incidence**

AGE (YEARS)	PRESENT STUDY( n =50)	
	INFARCTION	HAEMORRHAGE
10-20	1(2%)	-
21-30	1(2%)	-
31-40	5(10%)	1(2%)
41-50	10(20%)	3(6%)
51-60	5(10%)	7(14%)
61-70	7(14%)	3(6%)
71-80	3(6%)	2w4%)
>80	2(4%)	-

Mean age : 54.82 years, Infarction : 53.61 years, Haemorrhage : 57.37 years.

**TABLE 2: COMPARATIVE STUDIES OF AGE GROUP**

AGE (YEARS)	PRESENT STUDY(n=50)	Vishnu et al <sup>7</sup> (n =50)	Tarun et al <sup>5</sup> (n=50)	Dalal et al <sup>8</sup> 1980(n=145)	Harrison et al <sup>1</sup> 1980 (n=145)
10-20	1(2%)	1(2%)	1(2%)	5(0.71%)	
21-30	1(2%)	1(2%)	1(2%)	20(2.84%)	9(6.29%)
31-40	6(12%)	6(12%)	4(8%)	69(9.8%)	14(9.79%)
41-50	13(26%)	10(20%)	10(20%)	72(10.22%)	33(23.07%)
51-60	12(24%)	14(28%)	17(34%)	189(26.84%)	37(25.57%)
61-70	10(20%)	12(24%)	10(20%)	211(29.97%)	42(29.37%)
71-80	5(10%)	4(8%)	3(6%)	138(19.06%)	8(5.99%)
>80	2(4%)	2(4%)	2(4%)	-	--

**Table 3: COMAPRATIVE STUDY OF ASSOCIATED DISEASE WITH CEREBROVASCULAR ACCIDENT**

	INFARCTION				HAEMORRHAGE			
	PRESENT STUDY	VISHNU et al <sup>7</sup> 2007(n=30)	Tarun <sup>5</sup> et al <sup>2</sup> 2001(n= 26)	Poungvarin et al <sup>4</sup> (n= 99)	PRESENT STUDY	VISHNU et al <sup>7</sup> 2007(n=30)	Tarun et al <sup>2</sup> 2001(n= 26)	Poungvarin et al <sup>4</sup> (n= 99)
HYPERTENSION	15	12	9	58	11	13	12	42
HEART DISEASE	4	5	3	55	-	4	3	44
CVA/TIA	5	3	3	14	1	-	1	12
DM	5	4	1	-	3	3	2	-
COPD&TB	2	3	2	-	3	1	1	-

Above table shows that hypertension was the commonest associated disease present in 68.8% of patients with haemorrhage and 44.1% of the patients with infarct which is comparable to other studies. Heart Disease was second most associated disease. It included valvular and ischemic heart disease.

**Table 4: SYMPTOMS OF CV STROKE AND THEIR COMPARATIVE STUDY**

symptoms	Present study(n=50)		Vishnu et al <sup>7</sup> 2007(n=50)		Tarun et al <sup>5</sup> 2001(n=50)		Poungvarin et al <sup>4</sup> 1991(N=174)	
	INFARCTION	HAEMORRHAGE	INFARCTION	HAEMORRHAGE	INFARCTION	HAEMORRHAGE	INFARCTION	HAEMORRHAGE
HEADACHE WITHIN 2 HRS OF ONSET	6 (17.6%)	13 (81.3%)	6 (20%)	14 (70%)	4 (15.4%)	19 (17.6%)	15 (15.8%)	28 (39.4%)
VOMITING	6 (17.6%)	12 (75%)	2 (6.6%)	15 (75%)	1 (3.8%)	13 (54.1%)	13 (13.7%)	15 (45.9%)
LOSS OF CONSCIOUS-NESS AT ONSET	1 (2.9%)	8 (50%)	6 (3.3%)	9 (45%)	1 (3.8%)	7 (29.2%)	18 (18.2%)	35 w(46.7%)
CONVULSION	0 (0%)	4 (25%)	3 (10%)	1 (5%)	2 (7.7%)	3 (12.5%)	-	-
SPEECH DISTURBANCE	12 (35.3%)	13 (81.3%)	18 (60%)	11 (55%)	11 (42.3%)	12 (50%)	-	-

Above table shows that there is high incidence of headache , vomiting and loss of consciousness in patients with haemorrhage in comparison to infarction .This is probably due to raised intracranial tension. Our study findings are comparable to other studies.

**Table 5(a) CT BRAIN FINDING AND COMPARISON WITH OTHER STUDIES( IN INFARCTION , n=34)**

	Present study (n=34)	Vishnu et al <sup>7</sup> 2007 (n=30)	Tarun et al <sup>5</sup> 2001 (n=26)	Weisberg et al <sup>3</sup> 1979
No of lesion				
Single	26(76.5%)	24(80%)	20(76.9%)	-
Multiple	8(23.5%)	6(20%)	6(23.07%)	-
Mass effect	8(23.5%)	7(23.33%)	6(23.07%)	25%
Vent. Extension	-	-	-	-
Site of lesion				
Basal ganglia	15(44.1%)	17(56.66%)	18(69.23%)	-
Int. Capsule	9(26.5%)	5(16.66%)	3(11.5%)	-
Lobar	4(11.8%)	7(23.33%)	10(38.46%)	-
Thalamus	6(17.7%)	1(3.33%)	1(3.84%)	-

**Table 5(b): CT BRAIN FINDING AND COMPARISON WITH OTHER STUDIES( IN HAEMORRHAGE , n=16)**

	Present study (n=16)	Vishnu et al <sup>7</sup> 2007 (n=20)	Tarun et al <sup>5</sup> 2001 (n=24)	Weisberg et al <sup>3</sup> 1979
No of lesion				
Single	16(100%)	24(80%)	24(100%)	-
Multiple	-			-
Mass effect	16(100%)	17(85%)	15(62.5%)	25%
Vent. Extension	13(81.3%)	11(55%)	8(33.3%)	-
Site of lesion				
Basal ganglia	8(50%)	11(55%)	15(62.5%)	77%
Int. Capsule	2(12.5%)	1(05%)	1(4.16%)	-
Lobar	8(50%)	5(25%)	5(20.8%)	15%
Thalamus	6(37.5%)	3(15%)	3(12.5%)	-

TABLE 5(a) and (b) shows high incidence of single lesion both with haemorrhage and infarction. Mass effect was seen more commonly with haemorrhage as compare to infarction. Most common site and lesion was basal ganglia followed by lobar region in infarction and haemorrhage. Our findings are consistent with other studies.

**TABLE 6: COMPARISON OF SSS WITH RESULT OF CT SCAN**

SIRIRAJ STROKE SCORE	CT SCAN	
	INFARCTION (n=34)	HAEMORRHAGE (N=16)
< -1 (Infarction)(n=20)	19(55.9%)	1(6.25%)
-1 to 1(uncertain)(n=8)	7(20.6%)	1(6.25%)
>+1(haemorrhage)(n=22)	8(23.5%)	14(87.5%)
Sensitivity	70.4%	93.3%
Specificity	93.3%	70.4%
Neg. predictive value	63.6%	95%
Positive predictive value	95%	63.6%
Overall accuracy	78.6%	78.6%

Above table shows comparison of results of Siriraj score with reports of CT Brain. 19 were correctly diagnosed as infarction and one patient of infarction was misdiagnosed as haemorrhage and in 7 patients the diagnosis was uncertain, out of total 34 patients of infarction.

**Table 7: COMPARISON OF RESULTS OF SSS IN OUR STUDY WITH OTHER STUDIES.**

SIRIRAJ SCORE SYSTEM	PRESENT STUDY(N= 50)		SOMAN et al <sup>6</sup> 2004 ( n=91)		VISHNU et al <sup>7</sup> 2007 (n=50)		Tarun et al <sup>5</sup> 2001 (n=50)	
	I(%)	H(%)	I(%)	H(%)	I(%)	H(%)	I(%)	H(%)
Sensitivity	70.4	93.3	63	84	88	73.33	95	77.7
Specificity	93.3	70.4	71	89	73.33	88	77.7	95
PPV	95	63.6	65	86	84.16	78.57	82.6	93.33
NPV	63.6	95	69	86	78.57	84.16	93.33	82.6
Accuracy	78.6	78.6	-	-	82.5	82.5	86.84	86.84

Above table shows that in our study the sensitivity, specificity, Positive predictive value, negative predictive value and accuracy for SSS were comparable with results of other studies.

## CONCLUSION:

Patients with infarction were more in number in comparison to haemorrhage. Incidence of stroke increases as the age advances. Siriraj score was preferred to help clinicians in making decisions while waiting for CT scan or otherwise. So at centre where advance facilities of CT OR MRI are not available and clinical sense is the only way of diagnosis, it is certainly of help in those remote places. This helps in management of patients with stroke.

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