Study on Role of CT in Cerebrovascular Accidents in a Tertiary Care Hospital

Sanjeev Suman[1], Babita[2], G. N. Singh[3]

ABSTRACT

Introduction: Cerebrovascular accident is defined as sudden loss of blood circulation to an area of the brain resulting in a corresponding loss of neurologic function. The aim of the study was to evaluate the role of computed tomography in cerebrovascular

Material and methods: The study included 80 clinically suspected patients of stoke who underwent CT imaging at Patna Medical College Hospital, Patna form March 2016 to February 2017.

Results: The most frequently affected age group was 60 to 69 (30%). The incidence of infarcts was higher (57.5%) than haemorrhagic stroke 32.5%.

Conclusion: CT scanning remains the useful technique for diagnosis of Cerebrovascular accidents because rational management of stroke depends of accurate diagnosis and it should be ideally done in all cases.

Keywords: Stoke, Computed Tomography

INTRODUCTION

Cerebrovascular accidents (CVA) are on the leading causes of death in developed countries after heart disease and cancer and also become one of the leading causes of death in India. It accounts for about one percent of admission to general hospital.[1] Cerebrovascular accidents or stoke is defined as an acute loss of focal and at times global cerebral function, the symptoms lasting more than 24 hours or leading to death with no apparent cause others than of vascular origin.[2]

Cerebrovascular accidents are major cause of mobility and mortality and clinically it is difficult to differentiate the types of stoke i. e, ischemic or haemorrhagic, in majority of cases as there are no specific differentiating feature.[3] Accurate and early diagnosis may improve the mortality and morbidity. Computed tomography is one of the most accurate methods available for identifying and localizing an infarct with brain.[4] Ischemic infarction and haemorrhagic infarction are well differentiated by CT.[5,6] CT helps to compare patterns of abnormalities which are diagnosed by clinical profiles and pathologic findings.[7]

Haemorrhagic stoke is due to rupture of vessels and is usually associated with hypertension.[8] Whereas in ischemic stroke, thrombotic or embolic occlusion of intra cranial is the major cause.[9] The aim of the study was to evaluate the role of computed tomography in cerebrovascular and differentiate the different types of stroke.

MATERIAL AND METHODS

The present study was conducted in the Department of Radiology, Patna Medical Collage Hospital starting from March 2016 to February 2017. 80 Patients were clinically diagnosed of stroke and were send to radiology department for CT scan of the brain using spiral CT. Scans were taken from

floor of the anterior fossa to the tap of the head. The imaging protocol consisted sequential 5x5mm axial sections (Coronal and sagittal). Patients with clinical history of stroke were included in our study. Patients having no impairement, headace or neurological deficiency due to hypoglycaemia/ diabetic keto acidosis were excluded.

The study was considered as a case of cerebrovascular accident if the patients has an acute stroke which is defined as a focal or global deficiency of brain function lasting for more than 24 hours and occurred within 2 weeks of patients presentation in hospital.

STATISTICAL ANALYSIS

Data was analysed by using simple statistical method with the help of MS- Office software.

RESULTS

Total of 80 patients were clinically examined and as CVA and send for CT scan study of brain. Among total patients 46 (57.5%) had infarction, 26 patients (32.5%) had haemorrhage, 4 (5%) had subarachmoid haemorrhage, 3 patients (3.8%) had venous thrombosis. 1 patient (1.2%) was normal (table 1).

Among the 80 cases included in our study 60 patients were males (75%) and 20 patients were female (25%).

In the present study on the basis of age groups, patients were distributed in 20-29 age group, which consisted 5% of cases, 30-39 age group consisted 6.2% cases, 40-49 age group consisted 8 (10%) patients, 50-59 age group consisted 10 (12.6%) patients, 60-69 age group consisted 24 (30%) case, 70-79 consisted 19 (23.8%) cases, 80-89 age group consisted 9 (11.2%) cases and 90-99 age group included 1 case (1.2%) (table-2). 60-69 age groups registered maximum number of case 24.

DISCUSSION

CT is helpful in differentiating the different types of stroke and also helps in early diagnosis of cerebrovascular accidents.[10,11] Cerebrovascular accidents are the third common cause of mortality and morbidity in elderly patients. Before the discovery of CT scan physicians were mainly dependent on history, physical examination etc. But accurate diagnosis was not 100%. Studies have proved that CT scan is helpful in differentiating

[1]Assistant Professor, [3]Professor and H.O.D., Department of Radiodiagnosis, Patna Medical College Hospital, [2]Assistant Professor, Department of Microbiology, Nalanda Medical College Hospital, Patna, Bihar, India

Corresponding author: Dr. Sanjeev Suman, Nalanda Scan Center, O/63, Doctor's Colony, Kankarbagh, Patna – 800020, Bihar, India

S. No.	CT findings	No. of cases	Percentage
01	Infarcts	46	57.5%
02	Haemorrhage	25	32.5%
03	SAH	4	5%
04	CVT	3	3.8%
05	Normal	1	1.2%
Total		80	100%
Table-1: Distribution of patients with clinically suspected CVA			

Age (In years)	No of cases	Percentage
20-29	4	5%
30-39	5	6.2%
40-49	8	10%
50-59	10	12.5%
60-69	24	30%
70-79	19	23.8%
80-89	9	11.2%
90-99	1	1.2%
Total	80	100%
Table-2: Show cases according to age group		

haemorrhagic and infarct and other causes of stroke and helpful in accurate treatment.[12,13]

In our study maximum number of cerebrovascular accident were due to infarct 46 (57.5%) and proved by others.[3,10] The incidence of positive findings was more when cerebral CT scans was performed within 2 hours of stroke onset but finding increased even more when done within 3 hours of stroke. CT remains the primary imaging test for the evaluation and diagnosis of acute stroke. 32% patents had haemorrhage. The haemorrhagic stroke is a sudden and presents with symptoms like headache, nausea, vomiting and decreased consciousness. 5% patients had subarachnoid 12% patient was normal. These finding of our study in relation to infarct and haemorrhage were almost similar to other studies.[7,14]

The findings of our study show the incidence of stroke 15 more in male than female.[15] Incidence of CVA increases with age with a male predominance.[11] It was observed that stroke were most common in age group between 60-69 years.[10,17]

CONCLUSION

CT scanning is important technique for diagnosis of acute stroke as rational management of stroke depends on accurate diagnosis and it should be done in all cases. CT is fast and is early performed in severely ill patients.

REFERENCE

1. Donnan GA, Fisher M, Macleod M, Davis SM. Stroke. Lancet. 2008;371:1612-23.
2. Hantano S. Experience from a multi centre register, Bull WHO, 1976;54:541-553.
3. Rosenwasser RH, Annonde RA. Diagnostic imaging for stroke. Clinical Neurosurgery. 2000;46:237-260.
4. Gaskill, Shipley MF. Routine CT evaluation of acute stroke. Neuroimaging. Clin. N. Am. 1999;9:411-412.
5. Forsting M, Dorfler A, Knauth M, Kunmer RY. Neuro radiological studies and findings in stroke. Ther- Umsch. 1996;53:535-43.
6. Allen CMC, Lueck CJ. Diseases of the cetral nervous system. In: Boon N, Colledg N, Walker B, Hunter J, eds. Davidson's principles and practice of medicine 20th edition. United Kingdom: Churchill living stone. 2006:979.
7. Kinkel WR, Jacobs L. Computed axial tomography in cerebrovascular disease. Neurology. 1976;26:924-34.
8. Razzaq AA. Khan BA, Baig S. CT imaging in young stroke patients. J Pak Medi Assoc. 1999;49:66-8.
9. Von Kumar et al. Acute stroke. Radiology 1992;212:307-324.
10. Mukerjee N, Hazra BR. Evaluation of stokes patients with reference to CT scanning findings. Journal Indian Medicine Assoc. 1998;96:174-176.
11. Warlow C. Cerebrovascular disease. Med international. 1987;47:1919-27.
12. Sandercock P, Molyneux A. Arlow C. Value of CT in patients with stroke: Oxfordshir community stroke project. BMJ. 1985;240:193-7.
13. Ogun SA, Olawole O, Fatade B. Misdiagnosis of stroke: A computerized tomography scan study. West African Journal of Medicine. 2000;19:19-22.
14. Thakur AK, Radhakrishnan K, Malu JC, EL-Magbri AA, Mouse ME. Clinical and computed topographic analysis of intra- cerebral haemorrhage. JAPI. 1991;39:317-9.
15. Ike SO. The pattern of admissions into medical works of the university of Nigeria Teaching Hospital. Enuge. Nige J Cli Pra. 2008;11:185-92.
16. Komolafe MA, Komolafe EO, Fatoye F, Adetiloye V, Asaleye C, Famurewa O, et al. Profile of stroke in Nigerians: a prospective clinically study. Afr J Neurological Sciences. 2007:26:5-13.
17. Mark MP, Holmgren EB, Fox AJ, Patel S, Kummer RV Froehrich J. Evaluation of early computed tomographic findings in acute ischemic stroke. Stroke. 1990;30:389-92.

934

International Journal of Contemporary Medical Research
Volume 4 | Issue 4 | April 2017 | ICV (2015): 77.83 |
ISSN (Online): 2393-915X; (Print): 2454-7379