

Delay in Presentation of Acute Ischemic Stroke in Lahore General Hospital, Lahore

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Objectives: To find out the time interval from onset of the symptoms to admission in the hospital of patients suffering from acute ischemic stroke, in order to assess the feasibility of thrombolytic therapy in Lahore General Hospital. **Design:** Hospital-based, prospective and observational study **Setting:** Lahore General Hospital Lahore. **Duration:** Six months from January – June 2004. **Patients:** Seventy two patients with acute ischemic stroke diagnosed on basis of clinical findings and CT scan. **Methods:** Patients of a acute ischemic stroke including cerebral infarct, TIA, venous infarct and lacunar infarct were diagnosed on basis of clinical history, examination and CT scan and enrolled in the study. Data was collected on a Performa. Time taken by patients to reach hospital after onset of symptoms, distance of patients' residences from hospital, education level of patients and time required to do a CT scan after arrival of patient in hospital were studied. **Results:** 54.2% were male and mean age of patients was 60 years. 58 patients had cerebral infarction, TIA's and venous infarction were 8 and 6 respectively. Delay in presentation was divided in three groups. Within three hours (hrs) 15 (21%) patients arrived. 54 and 18 patients arrived in 3-- 24 hrs group and >24 hrs group. Mean distance was roughly 44 km. Mean distance for 0—3hrs, 3—24hrs and >24hrs group was 14, 35, and 85 Km respectively. Average time required to do CT scan was nine hours after arrival of patient in emergency department. Sixty-five percent of patients coming were illiterate. **Conclusion:** Majority of the patients with ischemic stroke present late to emergency department. Many factors including distance from hospital, illiteracy, non-availability of ambulance services responsible for it. Evaluation of patients and provision of urgent CT scan is required in hospitals.

Key words: Stroke, acute ischaemia, delayed presentation

Stroke is a leading cause of death and long term disability and is associated with high costs¹. With the advent of time-dependent thrombolytic therapy for ischemic stroke patients, it has become increasingly important for stroke patients to arrive at hospitals quickly. Thrombolytic therapy has shown to improve neurological outcome of acute ischemic stroke if given within three hours². The diagnosis of ischemic stroke must be confirmed within this three hour "window period" after onset of symptoms. This requires that patients must arrive much earlier than this window period. Studies in Western Countries have shown, delay in arrival of patients to hospital as most important factor in determining eligibility of thrombolytic therapy^{3,4,5}. We in this study have tried to determine the delay in arrival of ischemic stroke patients in our hospital and some of the factors causing it.

Aims and Objectives:

The objective of this was to find out the time interval from onset of the symptoms to admission in the hospital of patients suffering from acute ischemic stroke, in order to assess the feasibility of Thrombolytic Therapy in Lahore General Hospital.

Study Design: It was a hospital-based, prospective and observational study.

Setting: Department of Medicine, Lahore General Hospital, Lahore.

Duration of Data Collection: Study was conducted for six months from January to June 2004.

Sample Size: Seventy-two patients.

Sampling Technique: Consecutive cases.

Inclusion Criteria: Patients of either sex and age above 15 years suffering from acute ischemic stroke or transient ischemic attack diagnosed on the basis of the clinical findings and CT scan.

Exclusion Criteria: Following patients were excluded from the study i) recurrent ischemic stroke, ii) hemorrhagic stroke, iii) SAH, iv) head Trauma, v) SOL

Patients and Methods: Patients with acute stroke are admitted through Emergency Department. Those patients who were suffering from acute ischemic stroke, including cerebral infarction, venous infarction, TIA and lacunar infarct were identified with the help of history, examination and CT scan, and enrolled in the study. If initial CT scan was inconclusive a repeat scan was performed depending upon progression of the signs and symptoms. CT scan reporting was done by the neurophysician or radiologist. Patients suffering from recurrent ischemic infarct were excluded. Data was collected on a Performa. Information was obtained from the relatives for the patients who were unconscious or disoriented.

Time of onset of the symptoms was ascertained. For those patients who woke with the symptoms, time of onset of symptoms was taken as time of wakening. For those who were admitted unconscious after being found collapsed time of onset was taken as time they were last witnessed to be well. Delay in presentation was divided in three groups; 0—3 hrs, 3—24 hrs and >24hrs. Location of the patients and its approximate distance from hospital was determined from patients or their relatives. Time taken to arrange CT scan after the patient has admitted in the

hospital was recorded. Another important factor the education of the patient and that of the attendant who brought the patient were also noted. Data was recorded on the SPSS 10.0 version.

Results:

Number of patients included in the study was seventy two. These included 54.2% male (n=39) and 45.8% female (n=33) patients (Figure 1). Mean age of the patients was 60 years whereas, youngest patient was 20 years old female (postpartum) and maximum age noted was 85 years (Figure 2). Majority of the patients were in range of 45 to 70 years of age. Out of 72 patients 8 patients were diagnosed as suffering from TIA, 58 patients had cerebral infarction and venous infarct was found in 6 patients (Figure 3). Five of the six patients having venous infarct were pregnant or postpartum females.

Delay in presentation was divided in three groups. Fifteen patients (approx 21%) arrived within three hours of onset of symptoms. Maximum number of patients (n=39, %=54) arrived within 3—24 hrs. Remaining of the 18 patients arrived after 24 hrs had lapsed since the onset of symptoms (Figure 4). Mean distance from where the patients came according to rough estimate was 44 km. Distance played important role in delayed arrival of the patients. For patients in 0—3 hrs group mean distance was 14.6 km (graph). For patients in 3—24hrs group and >24 hrs group average distance was 35 and 85 km (approx). Minimum time required to do a CT Scan was one hour after arrival in hospital. Average time to get the CT scan was 9 hrs. Sixty-five percent of arriving patients were illiterate and only 7% had got matric or more as educational qualification (Figure 5). Most of the patient attendants who came with the patients were also illiterate.

Twenty seven of the initial Ct scans were normal. Thirty-eight showed cerebral infarction, two showed lacunar infarct and five venous infarcts. Repeat Ct scans were done in seventeen cases (23%) out of which 14 showed cerebral infarct, two had lacunar infarct and one venous infarct.

Fig.1: Gender

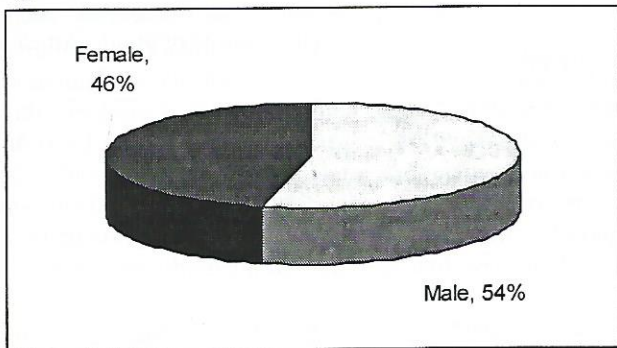


Figure 2

Age Distribution

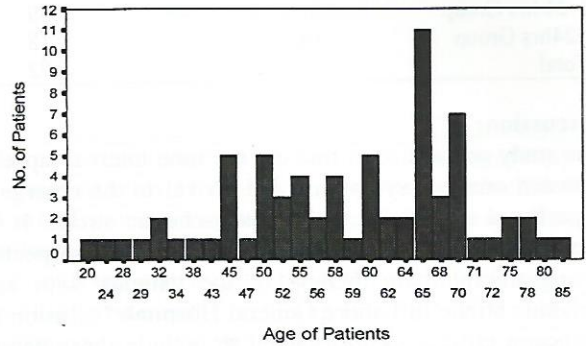


Fig.3: Type of stroke

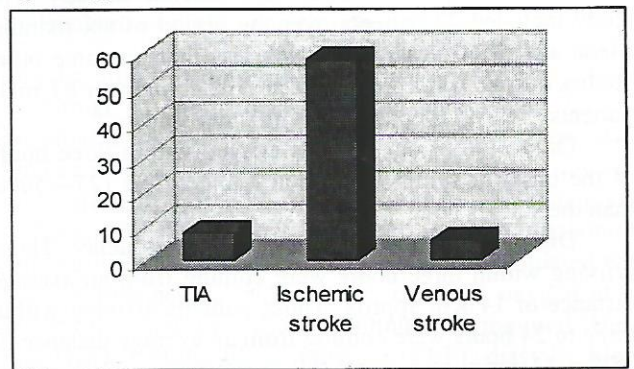


Fig.4: Time delay in arrival

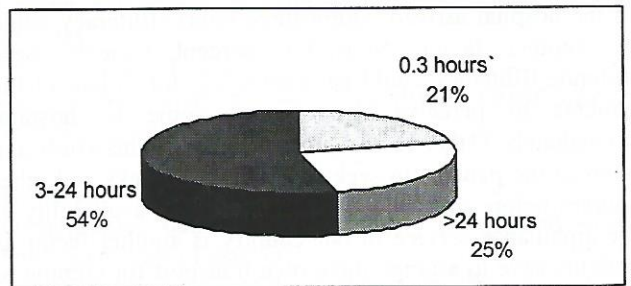


figure 5

Education Level of Patients

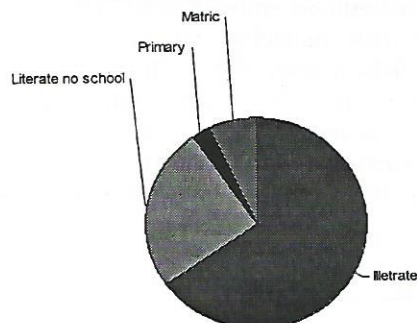


Table Distance from hospital

Time delay in arrival	Mean distance (km)	n=
0-3hrs Group	14.60	15
3-24 hrs Group	35.41	39
>24hrs Group	84.94	18
Total	43.46	72

Discussion:

The study was aimed to find out the time interval lapsed in between onset of symptoms and arrival in the emergency department of patients with acute ischemic stroke. It was carried out as a preliminary study to see the prospects of giving thrombolytic therapy to the patients with acute ischemic stroke in Lahore General Hospital. Inclusion and exclusion criteria were designed to include those patients who could be considered for thrombolytic therapy. The study included 72 patients over the period of six months. Mean age of 60 years was much less than in some other studies carried out abroad^{6,7}. The higher number of male patients (54.2%) is consistent with other studies^{2,8}.

Only 21% of our patients arrived within three hours of the onset of symptoms which is much less (27—50%) than the studies done in the Western Countries^{2,3,9,10}.

Distance played important role in this delay. Those arriving within three hours were coming from an average distance of 14 Km approx. Those patients arriving within three to 24 hours were coming from an average distance of 35Km. Majority of patients fell in this group. The patients coming after 24 hrs (average distance 85Km) were mostly from other cities. Only those patients living in the vicinity of the hospital arrived within three hours. Illiteracy could be another factor. Sixty-five percent patients were illiterate. Illiteracy could be responsible for failure of the patients to perceive danger and come to hospital immediately. Other factors not included in this study are habit of the patients to seek advice from quacks and other sources before coming to the hospital. Non-availability of the ambulance service in our country is another factor as patients have to arrange their own transport for coming to the hospital. Average time to carry out CT scan was 9 hours, which is very poor time and needs to be improved. A study of UK hospital not offering thrombolytic therapy to its patients, showed only ten percent of the patients were having CT scan within three hours⁶. However where thrombolysis is carried out time is much faster⁷.

The study highlights that health education is necessary to increase the public awareness of seeking medical help after stroke onset and development of ambulance transportation services. Public campaign has showed to improve arrival time¹¹. Hospitals are required to speed up the evaluation of the stroke patients and immediate CT scan be made a priority for stroke patients. Thrombolytic therapy is only possible if conditions are drastically improved.

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