Delayed Arrival of Stroke patients to the Hospital

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المقدمه

رغم التوصل حديثا الى علاج يساعد في الشفاء من الضرر الذي يصيب الدماغ نتيجة توقف تدفق الدم اليه بعد الأصابه بالطارئه الدماغيه الوعائيه باعادة فتح الاوعيه الدمويه ومنع التلف في انسجة الدماغ. الا ان القليل من المرضى يستفيدون من العلاج، لسبب انه يجب ان يستخدم خلال فترة ثلاث ساعات من بدء علامات الاصابه ،وان نسبه قليله جدا من المرضى يصلون الى المستشفى ضمن الزمن المحدد لاخذ العلاج .

الهدف من البحث

دراسة العوامل التي تأخر وصول مرضى الطارئه الدماغيه الوعائيه الى المستشفى في وقت مبكر للأستفاده من العلاج.

طريقة البحث

تمت دراسة خصائص المرضى وتسجيل زمن بدء اعراض المرض وزمن الوصول الى مستشفى الديوانية التعليمية بالرجوع الى سجل المريض في المستشفى ومقابلة المريض وذويه خلال فترة ثلاثة ايام من دخوله المستشفى.

النتائج

تمت دراسة 246 مريض خلال فترة سنتين، كان معدل عمر المرضى 63سنة ،125 مريض من الذكور.
كان الوقت المتوسط لزمن الوصول 11,6 ساعه ونسبة المرضى الواصلين خلال فترة ثلاث ساعات 6,1 %. أظهرت الدراسه ان من العوامل التي أخرت وصول المرضى هي متوسط العمر من الذكور،السكن خارج المدينه، الاصابه بالمرض للمره الاولى في العائله، علامات بدء المرض طفيفة ،جهل المجتمع لأعراض الطارئه الدماغيه الوعائيه ووجود العلاج ، وعدم توفر وسيلة نقل وانعدام العمل بسيارات الاسعاف .

الاستنتاجات

لغرض علاج الطارئه الدماغيه الوعائيه ولأستفاده من العلاج يجب رفع الوعي الصحي للمجتمع وتوفير نظام نقل صحي متطور.

Abstract

Background:

Although recent advances have been made in the treatment of acute stroke, patients often arrive at the hospital too late to receive the maximum benefit from these new therapies.

*Objective***:**
   To investigate factors that influence the time from symptom onset to hospital arrival (delay time) for patients with stroke.   .

Methods:
  Prospective observational study by recording the patient's characteristics, final diagnosis, and admission delay for all suspected acute stroke admitted patients within 3 days of onset.

Results:
   246 stroke patients were studied at Al-Dewania teaching hospital, the median age of the patients was 63 years, 125 were male. The median delay time was 11.6 hours, 6.1% of patients arrived within 3 hours, 18.3% were arrived within 6 hours., Middle age ,male , first stroke ,mild neurological deficit, living in rural areas ,abscess of ambulance transport and low medical public knowledge of stroke significantly delay time of presentation to the hospital.

Conclusion:
   Increase public awareness of stroke symptoms and the need to seek early medical attention with direct transport to the hospital better by ambulance will be required for effective treatment of acute stroke.

Introduction

   Stroke is a leading cause of death and long term disability and is associated with high costs.[1][2] In stroke, the extent of cell damage is determined by the degree and duration of ischemia as well as by various degree of susceptibility to ischemia among different cell types in the brain.[3][4] Clinical studies suggest that cerebral ischemia persisting more than 6 hours results in permanent neurological damage and for this reason, until recently, treatment of acute stroke has been mainly supportive.[4][5][6][7]Although the National Institute of Neurological Disorders and Stroke rt-PA trial provided evidence that thrombolytic therapy for acute stroke can improve neurological outcome, such therapy is time dependent and need to be taken within three hours and not later than six hours from the onset of symptom.[4][5][6][7][8][9] Stroke patients how were treated within 90 minutes of the onset of their symptoms showed the most improvement and those treated within 60 minutes had the best

chance of having a complete or partial reopening of the occluded artery.[6] So it has become increasingly important for stroke patients to arrive to the hospital early. Despite the approval of thrombolytic therapy, only a small percentage of patients receive this therapy.[10][11][12][13][14][15][16] Patient delays in seeking treatment for stroke and delay within emergency department are the major factors in lack of use of thrombolytic therapy for stroke.[10][11][12][13][14][15][16] Several studies have demonstrated the factors for delay in stroke arrival all are conducted in societies with better health education, ambulance calling system and medical services.[11][12][13][14] We conduct this study to clarify the main factors delaying stroke patient arrival to our hospital in Al- Dewania city.

Subjects and methods

Hospital setting and patients
This study was designed as prospective registry of patients presenting with acute stroke to the emergency department in Al-Dewania teaching hospital which is the only central hospital in the city having emergency and neurological units with medical department. The inclusion criteria were focal neurological symptoms of presumed vascular origin in patients who sought medical help at the emergency department within 3 days of onset of symptoms and who were referred to the medical ward or neurological unit. Exclusion criteria were a CT scan or other investigations that revealed a primary cause of the symptoms other than stroke or TIA or lack of specification of time of symptom onset.

Data collection
Data were prospectively collected by physician from patients and family members by direct integration, and medical records between April 1, 2005 and April 1, 2007.Stroke onset time was considered to be the time as the neurological deficit was first noticed by the patient or an observer.

Results

Overall, 246 patients were studded. The median age of the patients was 63 years, the largest proportion of the patients being between 45-65 years 120 (48.78%) patients, more than 65 yeas 106 (43.9%) patients and below 45 years 20 (8.13%) patients. 127 (51.63 %) of the patients were female .36 (14.6%) were having recurrent stroke .144 (58.53%) of patients were live in the city and 102 (41.47%) were rural .

Overall pre-hospital delay time was 11.6 hours. 15 (6%) patients arrived within the first 3 hours, 45 (18%) arrived within 6 hours of stroke of onset. 9 of the patients presented to the hospital within the first 3 hours having recurrent stroke which account 25% of them, while only 6 (2.9) % from whom having first stroke reach the hospital within 3 hours table (2).

Regarding the age of the patients, the median delay time was 10.4, 12.8, 9.9 hours for the age less than 45 years, 45-65 years, more than 65 years respectively table (3). The female presented to the hospital in median delay time was 9.2 hours while male presented to the hospital with median delay time 13.1 hours table (4).

Only 5(2%) patients transported by ambulance with median delay time 5.2 hours, 156(63.4%) patients by their own vehicles their median delay time (10.2) hours and those dose not owing vehicles 85(34.6%) patients with median delay time (14.8) hours table (3).

113 (45.94%) of the patients presented to the hospital directly there median delay time 7.3 hours. 102 (41.46%) visited the private clinic before presentation to the hospital with median delay time 15.9 hours. 22 (8.94%) of the patients was take self medication and waiting for improvement before presentation to the hospital with median delay time 16.1 hours. 9 (3.66%) of the patients deny their illness until marked worsening there median delay time 19.4 hours table (5).

168(68.3%) patients presented as deterioration of consciousness, epilepsy and weakness associated with earlier presentation median delay time (7.3) hours, all the patients presented within 3 hours having these manifestations and 41(24.4%) patients of them arrived within 6 hours. While 78 (31.7%) patients with minor manifestations arrived with median delay time 16.8 hours and only 4 (5.1%) of them arrived within 6 hours table (6).

The median delay time for patients living in the city were 9.1 hours while the median delay time for whom living outside the city were 15.4 hours. Only 1 (0.98%) of 102 patients living in rural area arrived to the hospital within 3 hours and 14 (9.72%) from 122 urban patients arrived within same time, the attendance to the hospital within 6 hours 32 (22.22 %) patients were urban and 13 (12.74%) were rural table (7).

Table (1) the distribution of patient arrival with time comparing the patients with first stroke patients with recurrent stroke.

	Total number	<3 hours arrival		<6 hours arrival		Median delay time
		Nr	%	Nr	%	
Total patients	246	15	6.1	45	18.3	11.6
Recurrent stroke	36	9	25	20	25	5.5
First stroke	210	6	2.9	25	2.9	14.2

Table (2) the median delay time according to age

Age	Number	%	Median delay time
< 45 years	20	8.13	10.4 hours
45-65 years	120	48.78	12.8 hours
>65 years	106	43.9	9.9 hours

Table (3) the median delay time according to sex

Gender	Number	%	Median delay time
Male	119	48.37	13.1 hours
Female	127	51.63	9.2 hours

Table (4) the median delay time according to transportation mode

Transport mode	Number	%	Median delay time hours
Ambulance	5	2	5.2
Own vehicle	156	63.4	10.2
Others	85	34.6	14.8

Table (5) the median delay time according to rote of presentation

	patients		Median delay time
	Number	%	
Firstly presenting to the hospital	113	45.49	7.3
Visited private clinics	102	41.46	15.9
Taken self medications	22	8.94	16.1
Deny the illness	9	3.66	19.4

Table (6) the presenting time and median delay time according to presenting manifestation

Presenting manifestation	total		<3hours		<6hours		Median delay time
	Nr	%	Nr	%	Nr	%	
Loss of consciousness convulsion weakness	168	68.3	15	8.9	41	24.4	7.3
Others	78	31.7	0	0	4	5.1	16.8

Table (7) the presenting time and median delay time according to the living area

| Living | total | | <3hours | | <6hours | | Median delay time hours |
	Nr	%	Nr	%	Nr	%	
Urban	144	58.53	14	9 .72	32	22.22	9.1
Rural	102	41.47	1	0.98	13	12.74	15.4

Discussion

In the present study the median pre-hospital delay was hours 11.6 hours, with. This figure is somewhat higher than the reported in several other studies. For example, study performed in Houston, Tex, consisted of 214 patients with a median pre-hospital delay time of 4.5 hours, one in Cincinnati Ohio included 119 patients with median delay time of 5.7 hours. and one in United Kingdom and Dublin included 739 patients with median delay time 6 hours and 37% of the patients arrived within 3 hours while in our study approximately 6.1% of the patients arriving at the emergency department in less than 3 hours which is very low number can get the benefit of taking thrombolytic agents

We will try to explore the factors delaying our patients to attend the hospital early. There is little significance of age and sex of the patients with slightly early presentation of elderly, young and female. This can be explained by the personal and family attentions to these groups.

The previous stroke is a real life education of the patient and his family about stroke and its manifestations ,and increase the family attention to the patient and similar conditions which significantly shorten the time of presentation.

The presenting manifestations as deterioration of consciousness, weakness and convulsion were significantly shorten the time of presentation, obviously it's serious conditions even to the lay

peoples which needs urgent medical care. But this will not reflect the real number because many patients having minor manifestation will not attend the hospital or presented later than 3 days and can't included in this study.

The lake of social medical knowledge of stroke were delay the presentation to the hospital as in stroke patients for the first time making the patient wasting time in seeking medical advice in private clinics or taking self medications, instead of the ability to reach the hospital early when they need to as in patients with obvious neurological deficit .So the ignorance of the people to the stroke manifestations and the presence of a treatment with limited time window will significantly delay the presentation of stroke patients to the hospital.

Living area is also affecting the time of presentation which significantly shorter to the patients living in the city near the hospital, and probably lake of medical knowledge in rural society.

Transporting vehicle is important factor for the time of presentation, ambulance transport having the shorter time with the fact of absence of real calling system and shortage of ambulance, the patient families does not owing vehicle show difficulty in transporting the patient and take logger time for presentation.

Conclusions

As in other studies, majority of patients would not arrived at the emergency department early enough to diagnose and treated with rtPA or other therapies requiring a short time window.

The factors that delay stroke attendance are the public medical ignorance of stroke features, transport delay and living outside the city.

Recommendations

The present study offered an opportunity to examine pre-hospital delay in ischemic stroke patients in large and geographically diverse group of the patients.

For effective treatment of stroke we recommend to increase public knowledge of stroke features by radio and TV medical programs and direct lectures and improving ambulance transport with using 119 calling system.

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