

Time window for acute stroke treatment: current practice in King Abdullah Medical City Specialist Hospital in Makkah, Saudi Arabia

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Introduction

Stroke has become one of the most severe causes of long-term neurological impairment and disability and is considered one of the leading causes of mortality in the world⁽¹⁾. There is a variety of signs and symptoms of stroke, abrupt onset of difficulty in speech and focal weakness are the most critical physical symptoms of a stroke. Acute onset of unilateral weakness is also a common finding. Imaging is essential for the diagnosis of stroke, magnetic resonance imaging (MRI) has higher sensitivity than CT; therefore, a better detector of strokes⁽²⁾. Thrombolytic therapy has been approved for the treatment of acute stroke and it is dependent on the time of the intervention. Thus, early recognition and hospitalization of patients with stroke are very crucial for the overall outcome and benefit of the treatment⁽³⁾. This study aimed to determine time delays in stroke patients from symptoms onset to treatment with tPA initiation in King Abdullah Medical City Specialist Hospital, Makkah, Saudi Arabia

Method

This retrospective cohort study was conducted using medical records from King Abdullah Medical City Specialist Hospital in Makkah, Saudi Arabia to measure the Time window for acute stroke treatment: current practice in King Abdullah Medical City Specialist Hospital in Makkah, Saudi Arabia. The sample includes all patients diagnosed with acute stroke and who received tPA last three years. The Exclusion criteria for any patients with neurological deficits that are not caused by acute stroke are excluded from the study. Patients who died upon arrival or during transportation to the hospital, and those who presented late (>4.5 hrs of first symptoms onset) are to be excluded as well. Using administrative databases and medical records of acute stroke patients, we will document on a structured data collection form: demographic and social data, clinical presentation, time onset of the first symptom, time of seeking medical help, time of ED arrival, time of ED clinical examination, time of

Results

Nearly two-thirds (64.2%) were males and more than half (506%) were in the older age group (>65 years). Patients who underwent thrombectomy were 7.4%. The mean value of the NIHSS score was 10.7 (SD 7.14). The mean time from symptoms onset to arrival at the hospital was 82.4 (SD 44.1) minutes while the total time from recognition of symptoms to tPA treatment was 154 (SD 50.8) minutes. The prevalence of patients with delayed treatment was 72.8% and the rest were assumed to have early treatment (27.2%). None of the socio-demographic variables were predicted to influence delayed treatment.

Interval time (mins)	Mean ± SD	Median	Min	Max
Arrival at the hospital	82.4 ± 44.1	90.00	5.00	165.0
Examination by emergency doctor	92.9 ± 45.4	97.00	7.00	180.0
First sample was taken	97.3 ± 46.6	102.0	7.00	215.0
CT was done	128.2 ± 49.9	130.0	30.0	231.0
Examination by specialist	134.9 ± 49.1	140.0	35.0	240.0
tPA treatment was done	156.8 ± 47.8	165.0	60.0	255.0
Total time from recognition to tPA treatment	154.4 ± 50.8	165.0	10.0	255.0

Factor	Early N (%) (n=41)	Delayed N (%) (n=48)	P-value [†]
Age group			
<65 years	10 (45.5%)	30 (50.8%)	0.804
>65 years	12 (54.5%)	29 (49.2%)	
Gender			
Male	13 (59.1%)	39 (66.1%)	0.608
Female	09 (40.9%)	20 (33.9%)	
Recognition of symptoms			
By self	19 (86.4%)	44 (74.6%)	0.371
Not by self	03 (13.6%)	15 (25.4%)	
Frequency of sickness			
First	18 (81.8%)	44 (74.6%)	0.569
Recurring	04 (18.2%)	15 (25.4%)	
Symptoms recognized after sleep			
Yes	01 (4.5%)	06 (10.2%)	0.667
No	21 (95.5%)	53 (89.8%)	
Patient had thrombectomy			
Yes	02 (9.1%)	04 (6.8%)	0.661

Discussion

patients' age, race, sex, and educational level appeared to not affect prehospital delay times. In our study, we found no significant differences between delayed treatment and the socio-demographic variables of the patients. It may be because of the limited sample size or other potential confounders involved in this study. Further investigations are warranted to determine the true effect of socio-demographic characteristics in the delayed treatment of acute stroke patients. A multi-center approach may result in a better outcome and could provide a better insight into the influential factor of delayed in-hospital treatment in our region.

Conclusion

Patients' socio-demographic data along with NIHSS scores seem to have no significant effect on delayed treatment. Despite collective efforts to uphold timely stroke evaluation and treatment, the delays cannot be held. This underlines the need for effective public health programs intended to minimize time consumption when evaluating and treating patients who suffered from a stroke. Further research is needed in order to establish the delay in time for pre-hospital and in-hospital treatment of stroke patients.

Reference

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