

Thrombolysis in Ischemic Stroke: Algerian Experience

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Abstract:

Background: Recent therapeutic advances in ischemic stroke have changed patient care. Indeed, the advent of thrombolysis completely changed the management of patients with ischemic stroke; however, this therapeutic possibility can only be considered if the patient arrives within a very short time, not exceeding 4 hours 30 minutes, and in the absence of contraindications. The low rate of thrombolysis performed by the Neuro-vascular unit of Bab El Oued University Hospital Algiers and the particularly long arrival time of patients noted at the beginning of our experience, prompted us to systematically seek the causes of late arrival and the different contraindications noted in our patients.

Materials and Methods: Our study concerns patients having stroke and admitted in the neurovascular emergencies of Bab El Oued University Hospital between January 2018 and December 2019.

Results: The study included 3.045 patients, all the results will be shown in the tables below.

Conclusion: The advent of thrombolysis has completely changed the management of patients with ischemic stroke; however, the low rate of thrombolysis should prompt us to draw up a global action plan, based mainly on raising public awareness and training staff, in order to significantly improve the rate of thrombolysis in patients with ischemic stroke.

Key Word: Ischemic stroke; thrombolysis; contraindications; arrival time; awarness.

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I. Introduction

Ischemic strokes are more common than hemorrhagic strokes (approximately 85% of all strokes) and are associated with a high risk of death in the first month. The neurological handicap has a serious impact on the patient's life, particularly at the socio-professional and family level. Recent therapeutic advances in ischemic stroke have changed patient care. Indeed, the advent of thrombolysis has completely changed the management of patients with ischemic stroke; however, this therapeutic possibility can only be considered if the patient arrives within a short time, not exceeding 4.5 hours, and in the absence of contraindications (3); which explains the low rates of thrombolysis reported in some series (1). The low rate of thrombolysis performed by the Neuro-vascular unit of Bab El Oued University Hospital Algiers and the particularly long arrival time of patients, noted at the beginning of our experience, prompted us to seek the causes of late arrival and the different contraindications noted in our patients. Indeed, 657 patients arrived in the emergency department of our hospital between April 15 and December 31, 2017, but only 4 patients received alteplase (tPA) representing 0.6% of cases. The objective of our study is to identify the main causes of the late arrival of patients with an ischemic stroke in the emergencies of Bab El Oued University Hospital and the main absolute or relative thrombolysis contraindications.

II. Material And Methods

This This is a prospective observational study, concerning patients presenting an acute ischemic stroke and admitted in the neuro-vascular emergencies of Bab El Oued University Hospital between January 2018 and December 2019. The time between onset of symptoms and arrival at the emergencies ward was systematically specified in patients and we thus distinguished three groups of patients:

A first group (early arrival in less than 4.5 hours from the onset): these patients were evaluated and explored according to a formalized protocol, established at Bab El Oued University Hospital and inspired by standard recommendations of thrombolysis in acute ischemic stroke:

- Call the neurologist in extreme emergency (as soon as the patient arrives) and quickly organize his transfer to radiology;
- Then immediately request biological assessments and brain scan on red cards, allowing the identification of our patients in an emergency corridor reserved for them;

- Then quickly carry out a NIHSS “National Institutes of Health Stroke Scale” score and an ECG;
- Interpret the CT scan with the presence of the neurologist and the radiologist with achievement of the ASPECT score;

- Eliminate any contraindication (neurological or extra neurological) before possibly deciding on a thrombolysis, which will be carried out at the thrombolysis unit of the department of neurology where the patient will be hospitalized for monitoring and further investigations.

A second group (late arrival after 4.5 hours from onset): patients are subjected to a questionnaire aiming to find the main cause of the delay experienced by the patient to arrive at the emergency ward. This questionnaire allowed to verify :

- The knowledge about stroke symptoms and availability of acute intervention for stroke ;
- Bad or delayed orientation from the doctor who saw the patient first;
- Transfer time to hospital too long due to the density of road traffic and / or the distance from the patient's residence;
- If the patient does not live alone.

And the third group is that of patients with a wake-up stroke whose time of installation cannot be known without an MRI.

We retained in our study only the confirmed cases of ischemic stroke.

III. Result

During the period from January 2018 to December 2019, we received 3,045 patients with ischemic stroke in the emergency ward of Bab El Oued University Hospital.

Table no 1: Distribution of all patients according to time of arrival

Time of arrival	Number of patients	percentage
Total of patients	3045	100 %
Early arrival	143	4,5 %
Late arrival	2667	87,5 %
Wake up stroke	235	8%

Table no2: Distribution of patients who arrived early according to the therapeutic decision:

Therapeutic decision	Number of patients	percentage
Total of patients	143	100 %
Thrombolysis	53	37%
Contraindication to thrombolysis	90	63%

Table no 3: Main causes of late arrival of patients

Causes de présentation tardive	Number of patients	percentage
Total de patients	2667	100 %
Ignorance of patients and their relatives about symptoms of stroke or acute intervention for stroke	1656	62%
Misdiagnosis or non-directing to acute intervention by the first physician examining patient	850	32%
Traffic or distant residence	125	5%
Patient living alone	36	1%

Table no4: Main contraindications to thrombolysis:

Contraindication to thrombolysis	Number of patients	percentage
Total of patients	90	100 %
NIHSS > 25 or < 4	60	67%
Missing the therapeutic window	08	9%
Risk of bleeding	10	11%
Neoplasia	04	4,5%
Refusal of treatment	02	2%
Other	06	6,5%

IV. Discussion

There is little data on the real obstacles to thrombolysis in Algeria and in most other developing countries.

Our study shows that in the majority of patients, the delay in their arrival, in the emergency room of our hospital, is mainly explained by the ignorance of the signs of stroke and its early treatment by the general public and medical staff; which is indeed at the origin of a certain slowness to consult as well as a bad orientation of the patients.

This observation prompted us to draw up an awareness plan through posters intended for the general public and doctors working at the various emergency points in the capital. Surprisingly, the density of traffic in the capital has no significant effect on the time of arrival of patients. The causes leading to contraindicate thrombolysis were essentially neurological and mainly concerned the value of the NIHSS score. However, the value of this score must be tempered by the handicapping nature or not of the symptomatology, in the event of a score which may appear at first sight too low; this is the case with aphasia or isolated cerebellar syndrome. Exceeding the deadline for thrombolysis, intra hospital for 8 patients, should encourage us to further streamline our sector, through an action of continuous training and information of the nursing staff of our CHU. Finally, the 235 cases of wake-up stroke rejected for thrombolysis due to a dating problem could have been recovered with an MRI with a Flair sequence; this underscores the value of introducing MRI in the exploration of acute phase ischemic stroke in centers that have it.

V. Conclusion

The advent of thrombolysis has completely changed the management of patients with ischemic stroke; however, this therapeutic possibility can only be envisaged if the patient arrives within a very short time not exceeding 4.5 hours. This constraint largely explains the low rate of thrombolysis in our hospital; this should prompt us to draw up a global action plan, based mainly on raising public awareness and training staff, in order to significantly improve the rate of thrombolysis in patients with ischemic stroke.

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