

Administration of IV Thrombolytic Therapy in A Patient with Hemianopsia Symptoms

Intravenous thrombolytic therapy is also beneficial in very mild ischemic strokes. In cases where NIH Stroke Scale/Score (NIHSS) is <5 according to the FDA's guidelines, the necessity of using IV recombinant tissue plasminogen activator (rtPA) has been approved despite the risks it may pose. IV thrombolytic therapy is recommended to be used in patients with aphasia or hemianopsia only as well. In routine clinical practice, there is a tendency not to administer thrombolytic therapy in patients with a low NIHSS or with aphasia or hemianopsia only to avoid the risks that may be caused by the treatment. Hemianopsia may significantly affect the daily life of young and active patients. In this article, a patient, who was brought into emergency service with the complaint of visual impairment, whose neurological examination revealed partial homonymous hemianopia on the left side only and who received IV thrombolytic therapy, will be presented.

Keywords: Hemianopsia, thrombolytic therapy, ischemic stroke

(Turkish Short Title) Türkçe Kısa Başlık: Hemianopsi Semptomlu Vakada Trombolitik Tedavi Uygulanımı (Administration of IV Thrombolytic Treatment in A Patient with Hemianopsia Symptoms)

Intravenous thrombolytic therapy is also beneficial in very mild ischemic strokes. In cases where NIH Stroke Scale/Score (NIHSS) is <5 according to the FDA's guidelines, the necessity of using IV recombinant tissue plasminogen activator (rtPA) has been approved despite the risks it may pose (1). In the guidelines of the American Heart Association/American Stroke Association (AHA/ASA), it is recommended that rtPA should be given to all patients with a measurable neurological deficit, such as aphasia and/or hemianopsia only (2).

Introduction

30 In this article, a 60-year-old male patient, who was brought into emergency service with the
31 complaint of visual impairment, and whose neurological examination revealed left partial
32 homonymous hemianopsia only and who was found to have acute isolated PCA occlusion,
33 was evaluated by giving IV thrombolytic therapy.

34 Case Report:

35 A 60-year-old male patient. He was brought into the emergency service of our hospital at the
36 87th minute of his clinic with the complaint of a sudden onset of visual impairment after
37 alcohol consumption. His anamnesis revealed that he had had coronary artery disease and had
38 undergone coronary artery bypass surgery, and it was learnt from his family history that his
39 father had cerebrovascular disease. He was on clopidogrel 75 mg tablet 1x1. His neurological
40 examination did not reveal any abnormality except for partial homonymous hemianopsia on
41 the left side. NIHSS was 1. The cranial CT showed no pathological finding except for an
42 arachnoid cyst in the left sylvian fissure location (Figure 1). ASPECT was 10. A DWI-
43 hyperintense and ADC-hypointense appearance suggesting acute infarction in the right
44 hippocampal region was visualized on the cranial MRI (Figure 2). IV thrombolytic therapy
45 was initiated at the 147th minute of his clinic. The patient's clinical condition partially
46 improved after thrombolytic therapy. The patient was also ethiologically evaluated by the
47 Department of Cardiology. His ECG revealed atrial fibrillation. The patient was discharged
48 by being initiated on Rivoraksaban 20 mg tb 1x1, recommending outpatient clinic follow-up
49 for stroke. The neurological evaluation on the 3rd month revealed that there was a clinically
50 significant improvement in visual impairment.

51 Conclusion and Comments:

52 Cerebral infarctions of the posterior cerebral artery (PCA) region are not rare. Many patients
53 who are having PCA stroke cannot accurately identify their signs and symptoms since several
54 symptoms which cannot be clearly identified by patients are observed with PCA infarcts (3).

55 Patients are often unaware of their signs and symptoms; or if these clinical conditions arise in
56 stroke patients for the first time and / or in the form of isolated complaints, it may cause
57 delays in the diagnostic process, patients present late for intravenous thrombolytic therapy
58 (4).

59 Hemianopsia accounts for 70% of all visual field losses associated with posterior cerebral
60 arterial infarcts and is the most common anomaly of visual field (5). Homonymous visual
61 field defects significantly impair the visual function. In stroke, the incidence of homonymous
62 visual field defects ranges from 1.1 to 10% (6).

63 The incidence of homonymous hemianopsia is 40% in occipital lobe lesions, 30% in parietal
64 lobe lesions and 25% in temporal lobe lesions. Moreover, it shows up in 5% of optical
65 pathways and lateral geniculate nucleus involvement (4). Since hemianopsia can significantly
66 limit the activities of daily living (ADLs) such as walking, moving, reading at home or
67 outside and adapting to unfamiliar environments and places, it is an important disease (5).

68 In our presented case, the patient did not have any complaint or finding, except for visual
69 field loss. Apart from stroke, visual field loss may be caused by trauma, congenital
70 anomalies, tumors and infections. Yet, ischaemiae in the posterior watershed of the cerebral
71 artery account for 40-90% of all isolated homonymous visual field losses (6). In one study, it
72 was reported that surprisingly, only 3 out of 13 patients (30%) giving a history of stroke and
73 found to have visual field defect were aware of visual field loss (6).

74 Ischemic strokes involving the PCA region come up in between 5% and 10% of all acute
75 ischemic strokes. Lacunar infarcts are the most common subtype of stroke, followed by
76 atherothrombotic and cardioembolic infarcts (7,8).

77 The majority of patients who are having PCA stroke have a lower NIHSS score than that of
78 patients having middle cerebral artery (MCA) or internal carotid artery (ICA) stroke (9). The
79 NIHSS score is also very low in hemianopsia; however, it severely affects the quality of life.
80 The time elapsed between the occurrence of visual field loss and establishment of definitive
81 diagnosis is quite long in stroke patients; therefore, it is very important to determine visual
82 field loss early, since the long-term functional outcomes may progress worse in this group of
83 patients than in other stroke patients (4).

84 A 1995 study by the National Institute of Neurological Disorders and Stroke (NINDS)
85 demonstrated the efficacy of IV thrombolytic therapy within the first 3 hours in acute
86 ischemic stroke patients (10). Intravenous r-tPA was approved by the Food and Drug
87 Administration in the USA in 1996 (11). The drug was licensed in our country for use in
88 acute ischemic stroke in 2006. Today, this treatment is recommended to be used within 4.5
89 hours after the onset of signs and symptoms of acute ischemic stroke (12). There are few data
90 available for ischemic stroke patients presenting with homonymous hemianopsia and
91 receiving thrombolytic therapy. 3 patients with isolated homonymous hemianopsia were
92 identified among 1427 patients receiving thrombolytic therapy, and all of these patients have
93 been reported to produce excellent results (13). Breuer et al. reported the efficacy of
94 thrombolytic therapy in acute ischemic strokes in the PCA region (14).

95

96 The indication for intravenous thrombolytic therapy is based on the presence of a functionally
97 impairing disorder rather than the NIHSS score. Data on safety and efficacy in stroke patients
98 associated with the PCA region support the administration of intravenous thrombolytic
99 therapy. Therefore, acute ischemic stroke patients associated with the PCA region without

contraindications should be treated with IV t-PA within 4.5 hours from the onset of signs and symptoms.

Conclusion and Comment:

Differential diagnosis of ischemic stroke should absolutely be made in cases of sudden loss of visual field. Furthermore, the administration of the treatment has been reported to be useful in very mild ischemic strokes. Thrombolytic therapy is also recommended to be given in cases of aphasia or hemianopsia only. In routine clinical practice, there is a tendency not to administer thrombolytic therapy in patient with a low NIHSS or with aphasia or hemianopsia only to avoid the risks that may be caused by the treatment. Hemianopia may significantly affect the daily life of young and active patients. We wanted to present this patient, whose neurological examination revealed hemianopsia only and who benefited from IV thrombolytic therapy that we administered and did not develop any complication.



Figure I: The cranial CT showed no pathological finding except for an arachnoid cyst in the left sylvian fissure location.

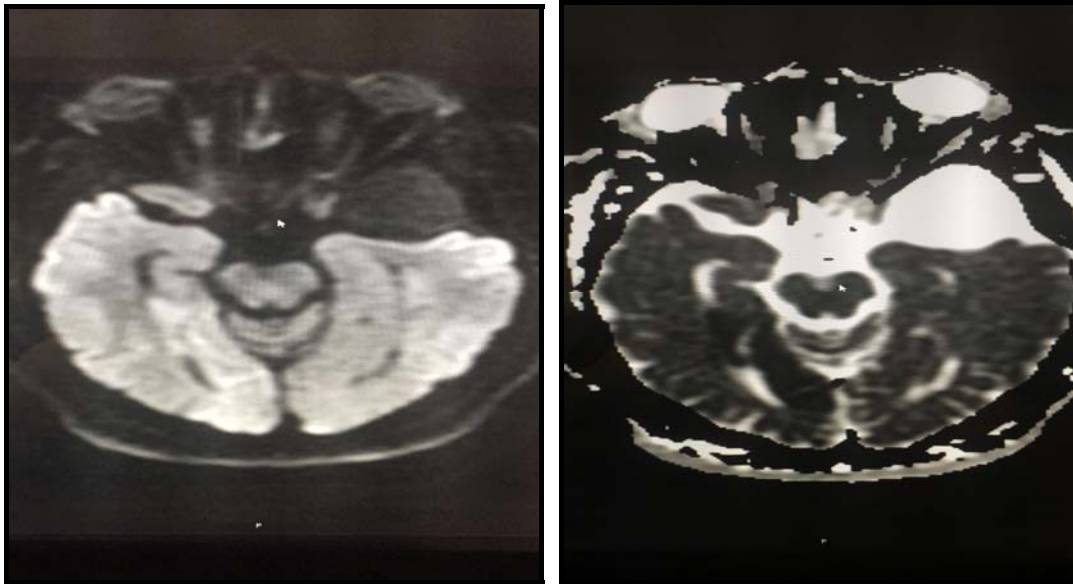


Figure II: A DWI-hyperintense and ADC-hypointense appearance suggesting acute infarction in the right hippocampal region was visualized on the cranial MRI.

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