

Intravenous thrombolytic therapy in an acute ischemic stroke patient with advanced stage diabetic foot

Hacı Ali Erdoğan¹, Başak Özkan¹, İbrahim Acır¹, Vildan Yayla¹

Department of Neurology, Bakırköy Dr. Sadi Konuk Training and Research Hospital, İstanbul, Türkiye

Acute ischemic stroke and diabetes mellitus (DM) are common comorbid diseases in the population.^[1,2] Approximately 25% of all stroke patients have type 2 DM.^[3] Microangiopathic changes play a role in the pathophysiology of diabetes-related stroke and foot ulcers. Ulcers on the lower extremities develop in 2 to 37% of diabetic patients.^[3] Intravenous (IV) tissue plasminogen activator (tPA) is a well-known and effective treatment for acute ischemic stroke.^[4,5] Experience with IV tPA usage in acute stroke patients with ulcerated diabetic foot is limited. Herein, IV tPA treatment in an acute ischemic stroke patient with advanced stage (Wagner Stage 5) diabetic foot is discussed.

A 63-year-old male patient was admitted to the emergency department with aphasia and right hemiparesis. The patient had hypertension, myocardial infarction, coronary bypass surgery, and hyperlipidemia in the medical history. In the neurological examination, global aphasia and right hemiparesis with central facial paresis (muscle strength 2/5) were determined. The National Institute of Health Stroke Scale (NIHSS) score was 13, and the pre-morbid modified Rankin Scale (mRS) score was 2. There was a necrotic ulcerated lesion on the left foot of the patient compatible with Stage 5 diabetic foot according to the Wagner classification (Figure 1). Cranial computed tomography did not show acute pathology. Diffusion-weighted imaging revealed diffusion restriction consistent with acute ischemia in the left medial cerebral artery territory (Figure 2). No major vessel occlusion was observed in intracranial and cervical computed tomography

angiography. The patient was admitted to the emergency department in an eligible time frame for IV thrombolytic therapy. The patient was evaluated with other clinicians (cardiovascular surgeon and orthopedist) for the risks and benefits of IV tPA treatment due to the ulcerated foot, and thrombolysis was started. No complications developed, and NIHSS score regressed to 5 in the 24th h. The NIHSS score was 3 at discharge, and the mRS score was 1 on the 90th day. A written informed consent was obtained from the patient.

Foot ulcers develop in approximately 15 to 20% of DM patients, which may result in amputation. Wagner's classification is a simple and widely accepted tool for evaluating diabetic foot lesions (Table 1). Diabetic foot is not rare in acute ischemic stroke patients. However, the information on IV tPA treatment in acute ischemic stroke patients with diabetic foot is limited. Li et al.^[3] reported that



Figure 1. Stage 5 diabetic foot according to the Wagner classification.

Correspondence: Hacı Ali Erdoğan, MD. Bakırköy Dr. Sadi Konuk Eğitim ve Araştırma Hastanesi, Nöroloji Kliniği, 34147 Bakırköy, İstanbul, Türkiye.

E-mail: drhaciali@gmail.com

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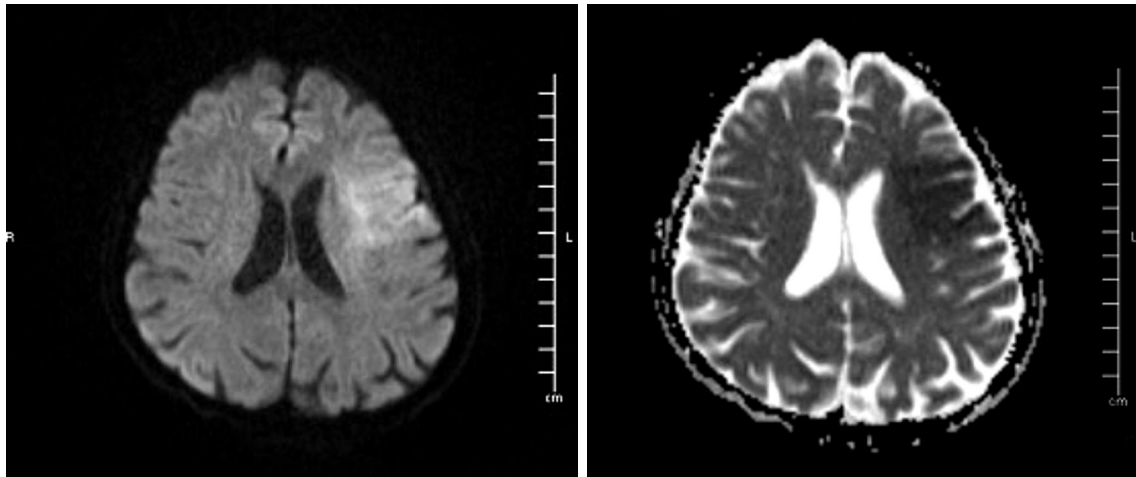


Figure 2. Acute diffusion restriction in the left medial cerebral artery area in diffusion-weighted imaging.

TABLE 1

Table 1. Wagner classification of diabetic foot

Stage 0	No ulcer but high-risk foot
Stage 1	Superficial ulcer with no invasion into deep tissues
Stage 2	Deep ulcer involving tendon, bone, ligament, or joint
Stage 3	Deep ulcer with abscess or osteomyelitis
Stage 4	Gangrene involving the fingers or metatarsal bones
Stage 5	Gangrene of the heel or entire foot that is unrecoverable and requires amputation

IV tPA treatment was beneficial and safe in patients with acute ischemic stroke with a second degree diabetic foot. However, our patient had Stage 5 diabetic foot according to the Wagner classification. After a multidisciplinary approach (cardiovascular surgeon and orthopedist) for possible complications, the IV tPA was applied. No complications were developed, and a significant clinical benefit was obtained.

In conclusion, collaboration with other clinics is important in similar complicated cases. We hope that this case will encourage neurologists to apply IV tPA treatment in rare, complicated acute ischemic stroke patients.

Data Sharing Statement: The data that support the findings of this study are available from the corresponding author upon reasonable request.

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