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## Role of Informal Caregivers of Acute Ischemic Stroke Patients in the Failure of Update Medications: A Letter to the Editor

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### Dear Editor,

Acute ischemic stroke (AIS), as one of the cerebrovascular disorders, is the most important cause of patients' disability (1). The disease affects 800 000 people in the USA each year (1). Asian countries are worse off, and the prevalence of stroke and mortality due to it is higher than that of the Americans and Europeans (2). Long-term damage from the disease may involve patients and their family members for many years (3). Therefore, early control of the unpleasant consequences of this event can prevent the loss of human and financial resources of families and the health system of the country (4).

In order to achieve this goal, a timely injection of tissue plasminogen activator (tPA) is one of the most effective interventions for AIS (5). If the tissue of the ischemic region is live after the stroke, tPA can reduce the destructive and deadly consequences of illness in AIS patients by eliminating vascular clots and recanalization of blocked blood vessels (5). Although tPA alone results in bleeding and symptomatic hemorrhage in only 2% to 6% of patients (6), it can reduce at least 35% of the outcomes and symptoms of the disease (7). Meanwhile, tPA significantly reduces the risk of one-year and long-term mortality (8). The most important indications for receiving tPA include referral to the hospital in less than 4.5 hours and the written consent of the informal caregivers for the injection. Although the average incidence of AIS and drug injection in the USA is reported to be about one hour (9), our overview in Imam Reza Hospital of Kermanshah shows that the passage from golden time is one of the main barriers to the drug injection.

Informal caregivers and family members of the patients are usually the first to transplant the patient to the

hospital or contact the emergency department after seeing the stroke symptoms (3). While a number of patients are transferred to the hospital at the right time, a significant proportion of them arrives at the hospital after a critical period of drug injection (9). On the other hand, patients who are transferred to the hospital in time are generally confronted with the problem of dissatisfaction with family caregivers. Due to that, the patient cannot receive the medication until the caregivers give their written consent. Based on an overview of the barriers to drug injection in the hospital, we found that the barriers are the main reasons for not receiving the tPA. This is generally due to the lack of awareness of informal caregivers about the benefits of this drug. Therefore, it is recommended that the Ministry of Health and Acute Stroke committees provide the necessary information and training for the general and at-risk populations and their families. Providing this training can facilitate the process of receiving tPA in critical situations. Consequently, morbidity and the fatal consequences of stroke are reduced and it can prevent the loss of financial and human resources and physical structures of the country.

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