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Case report

Post-thrombolysis hemorrhage in a patient with hypothyroidism and acute ischemic stroke: Case report

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ABSTRACT

Thrombolytic treatment with intravenous recombinant tissue plasminogen activator (rtPA) is an effective treatment for acute ischemic stroke. However, its effectiveness and risks in patients with hypothyroidism have not been reported. Here, we report the case of hemorrhagic transformation after intravenous rtPA thrombolysis treatment in a patient with acute ischemic stroke and hypothyroidism. An apparent edema formed around the hematoma and progressively worsened. He also developed lung infection, electrolyte imbalance, and abnormal liver and kidney functions, and eventually died within 1 month of symptom onset. Thus, our observations suggest that caution should be exercised for the administration of intravenous rtPA thrombolysis to patients with hypothyroidism.

1. Introduction

Hypothyroidism, a common endocrine and metabolic disorder, is a clinical syndrome caused by the insufficiency in the synthesis, secretion, or biological efficacy of the thyroid hormone [1]. Hypothyroidism accelerates atherosclerosis and increases the incidence of atherosclerotic ischemic stroke [2]. Thrombolytic treatment with intravenous recombinant tissue plasminogen activator (rtPA) is an effective treatment for acute ischemic stroke [3]. However, its effectiveness and risks in patients with hypothyroidism have not been reported. We report a patient with acute ischemic stroke and hypothyroidism who died of hemorrhagic transformation after receiving intravenous rtPA thrombolysis treatment.

2. Case report

A 53-year-old right-handed male patient was hospitalized 1.5 h after experiencing sudden slurred speech and muscle weakness in the right extremities. He had a 5-year history of hypertension and 3-year history of hypothyroidism, and had been taking 50 μg qd of levothyroxine sodium tablets. On admission, the patient was conscious, and showed dysarthria, right central facial paralysis, 1/5 myodynamia in the right upper extremity, 0/5 myodynamia in the right lower extremity,

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Fig. 1 – Cranial computed tomography before recombinant tissue plasminogen activator thrombolysis shows no hemorrhage.

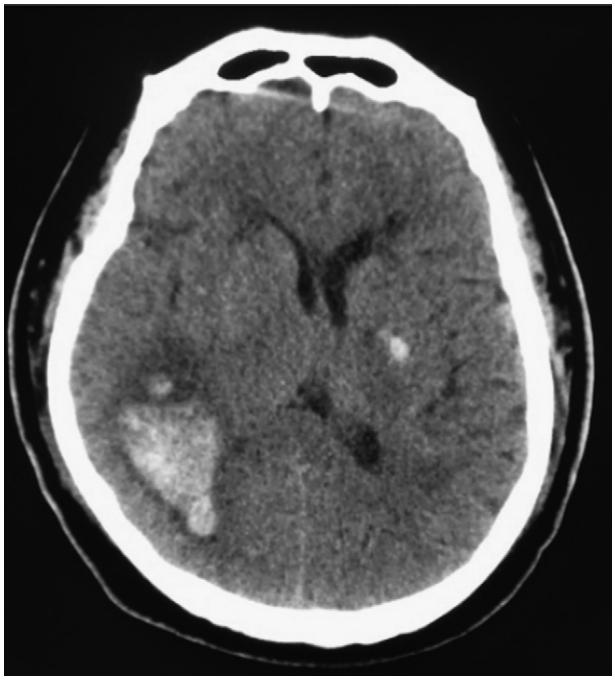

Fig. 2 – Cranial CT 1 h after rtPA thrombolysis shows hemorrhage in the right temporal lobe and spotted hemorrhage in the left basal ganglia.

5/5 myodynamia in the left limbs, hypalgesia in the right side of the body, and blood pressure of 170/90 mmHg. Cranial computed tomography (CT) taken 1.5 h after onset did not show any abnormalities (Fig. 1). Routine blood test, coagulation function, and liver and kidney functions were all normal. A random blood glucose level of 8 mmol/L was obtained, and the patient's National Institute of Health Stroke Scale (NIHSS) score was 12. Thus, the patient was treated with 70 mg intravenous rtPA thrombolysis 3 h after the onset based on a dosage of 0.6 mg/kg body weight (patient's body weight 115 kg), in addition to intravenous urapidil antihypertensive therapy. Upon completion of the rtPA thrombolysis treatment, the patient regained consciousness, but showed dysarthria, right central facial paralysis, 2/5 myodynamia in the right upper extremity, 1/5 myodynamia in the right lower extremity, and 5/5 myodynamia in the left limbs. One hour after rtPA thrombolysis treatment, the patient experienced headache, vomiting, and drowsiness. Cranial CT reexamination revealed hemorrhage in the right temporal lobe extending to the outer right side, a parenchymal hematoma approximate 3.5 cm × 2 cm × 4 cm in size, and a spotted hemorrhage in the left basal ganglia (Fig. 2). Cranial CT reexamination 24 h later showed no increase in bleeding, an apparent compression of the right ventricles, a slight left shift of the midline, and a left basal ganglia infarction with hemorrhage (Fig. 3). The patient was lethargic, opened his eyes on stimulation, presented occasional spontaneous movement of the left limbs, and did not respond to stimulation on the right limbs. Thyroid function test results were all significantly below normal levels as follows: thyroxine (T_4), 26.4 nmol/L (66–181 nmol/L); free

Fig. 3 – Cranial CT 24 h after rtPA thrombolysis shows hemorrhage in the right temporal lobe surrounded by edema, compressed right ventricle, infarction, and spotted hemorrhage in the left basal ganglia.