

Case Studies

Thrombolytic Therapy of Acute Ischemic Stroke during Early Pregnancy

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Thrombolytic treatment (recombinant tissue plasminogen activator [rt-PA]) has established efficacy in acute ischemic stroke, but pregnancy has been an exclusion criterion for all clinical trials that validated alteplase in acute stroke, so our knowledge about its use in this condition is limited. Herein we report the successful use of intravenous rt-PA thrombolysis, uncomplicated by neither hemorrhage development nor other complication in a woman who was 13 weeks pregnant with acute ischemic stroke. The brain magnetic resonance imaging diffusion-weighted sequences showed increased signal in the territory of the left middle cerebral artery. Our case had a good maternal and fetal outcome, and advocates that the use of thrombolytics may be feasible in pregnant patients and help to avoid residual neurologic deficits. A summary of published cases in the early aspect of pregnancy and outcomes is presented. Risks and benefits to mother and fetus must be weighted up, but intravenous thrombolysis must not be considered as an absolute contraindication, even in early pregnancy. **Key Words:** Acute stroke—thrombolysis—pregnancy—tPA—alteplase.

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Intravenous thrombolysis with alteplase is now accepted as the therapy of choice for stroke, but pregnancy has been an exclusion criterion for all clinical trials that validated alteplase in acute stroke, so our knowledge about its use in this condition is limited and relative only to case reports and case series.

Herein we report the successful use of intravenous recombinant tissue plasminogen activator (rt-PA) thrombolysis, uncomplicated by neither hemorrhage

development nor other complication in a woman who was 13 weeks pregnant with acute presumed cardioembolic ischemic stroke.

A 32-year-old, right-handed female being 13 weeks pregnant, with no particular history except a report of frequent palpitations, presented to the emergency department for brutal onset aphasia (blurred understanding, speaking disorders) and numbness of the right hand.

On arrival, she presented with aphasia without any motor deficit, the National Institutes of Health Stroke Scale score on admission was 3. Blood pressure was 132/85 mm Hg. Initial laboratory studies revealed normal peripheral cell counts, electrolytes, and coagulation values. The laboratory studies further revealed reduced protein S concentrations consistent with physiologic changes in pregnancy predisposing to thrombosis, with return to normal range after delivery.

The brain magnetic resonance imaging (MRI) diffusion-weighted sequences showed increased signal in the superficial territory of the left middle cerebral artery (Fig 1), with left M2 branches less visible than right ones on

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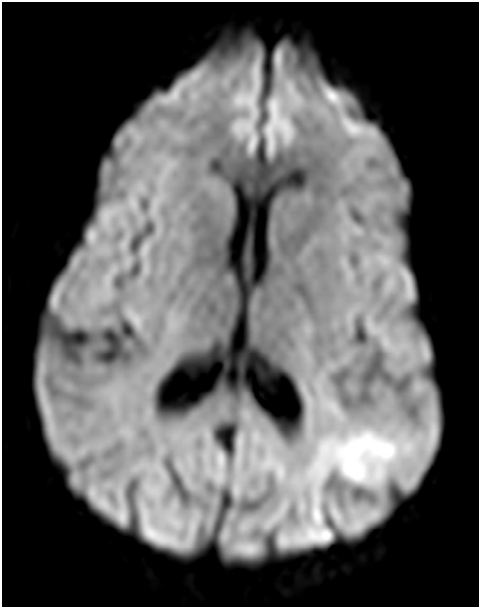


Figure 1. Brain magnetic resonance imaging diffusion-weighted sequence showing increased signal in the territory of the left middle cerebral artery.

time-of-flight sequence. On fluid attenuated inversion recovery-weighted sequences (Fig 2), a prior stroke (not visible on diffusion-weighted sequences) in the territory of the right middle cerebral artery was discovered.

After discussion with the family concerning the risks of thrombolysis for the pregnant mother, and the potential risk for the baby, and after they decided to take the risk and gave their consent, the patient received intravenous (IV) rt-PA 4 hours (240 minutes) after onset of symptoms.

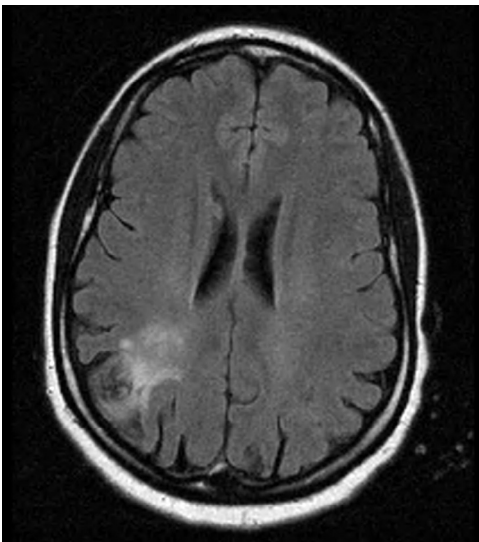


Figure 2. Brain magnetic resonance imaging FLAIR-weighted sequence showing increased signal in the territory of the right middle cerebral artery. Abbreviation: FLAIR, fluid attenuated inversion recovery.

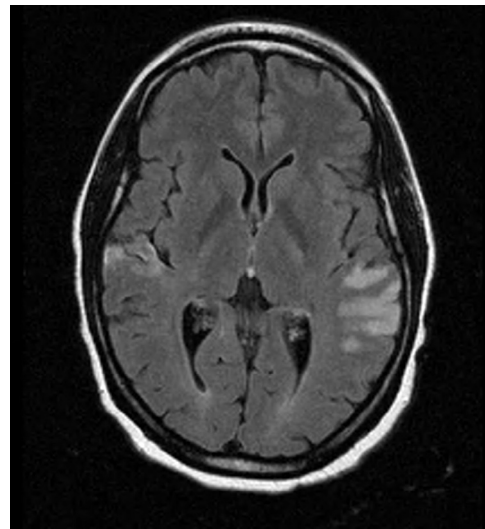


Figure 3. Control brain magnetic resonance imaging FLAIR-weighted sequence performed the following day showing appearance of an increased signal in the territory of the left middle cerebral artery. Abbreviation: FLAIR, fluid attenuated inversion recovery.

She presented marked phasic improvement and nearly completely recovered from her aphasia.

The control MRI scan (Fig 3) performed the day after showed no hemorrhagic transformation but a constituted ischemic stroke with appearance of a hyperintense signal in fluid attenuated inversion recovery-weighted sequences in the superficial left middle cerebral artery territory.

Doppler ultrasound of the supra-aortic trunks found no cervical arterial disease. The electrocardiogram and a transthoracic echocardiography were normal. Four Electrocardiogram Holters showed no rhythm disorder. Repeated transesophageal echocardiography and a cardiac MRI finally revealed normal after an initial doubt about a possible little myxoma of the left atrium.

A treatment with aspirin (250 mg daily) was then initiated, and she was transferred to a rehabilitation day center for speech therapy. Aspirin was later switched to subcutaneous low molecular weight heparin 2 weeks before delivery.

Six months after her stroke and after an uncomplicated pregnancy, she gave birth to a healthy baby without complication at term. Considering that this stroke was probably of cardioembolic origin, with a history of 2 bilateral strokes, a treatment by vitamin K antagonist (Coumadin) was introduced after delivery.

In follow-up consult, the 6-month-old baby was in good health, her mother presenting only slight phasic troubles.

Discussion

The use of rt-PA in pregnant patients historically has been regarded as relatively contraindicated. The major

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