

Successful Revascularization of Acute Middle Cerebral Artery Occlusion by Intravenous Thrombolysis While on Apixaban

Sir,

A 60-year-old hypertensive female taking low-dose apixaban for atrial fibrillation and prior stroke came with acute right hemiparesis and aphasia of 150 min duration while undergoing ayurvedic treatment. Her National Institutes of Health Stroke Scale (NIHSS) score was 16 and blood pressure was 170/100 mmHg. The last dose of apixaban was taken 13 h before admission. Emergency computed tomography (CT) brain showed a hyperdense middle cerebral artery (MCA) sign with Alberta Stroke Program Early CT score of 7 [Figure 1a]. Her activated partial thromboplastin time and prothrombin time at the emergency was within normal range; thrombin time and anti-factor Xa activity assays were not available. She was given intravenous thrombolysis after discussing the risks with the available family member and caretaker. Tissue plasminogen activator was started by 200 min from onset with a door to needle time of 50 min. NIHSS score dropped 8 points in 2 h with improvement in motor scores. A repeat CT brain showed disappearance of the hyperdense MCA with a left frontotemporal infarct [Figure 1b]. The patient was started on aspirin after the 24 h CT scan which showed no evidence of bleeding. Mild word finding issues persisted. She was discharged after 5 days with low-dose apixaban which was later changed to full dose after a repeat CT taken at day 14. She was counseled well regarding the dose and schedule of apixaban and is under follow-up with no deficits.

As more patients are on newer oral anticoagulants (NOACs) for secondary prevention, identification of the right candidate for intravenous thrombolysis can be a challenge. Although guidelines suggest mechanical thrombectomy as the primary treatment and do not warrant intravenous thrombolysis for patients on NOACs, inadequate endovascular facilities make intravenous thrombolysis relevant. The emergency facilities to do anti-factor Xa activity, thrombin time, or ecarin clotting time are not available in most of the centers. Routine coagulation tests will not predict the accurate biological activity of the NOACs.^[1] However, a normal baseline coagulation profile can rule out

a major overdose. Of the NOACs, apixaban has a bleeding risk comparable to aspirin.^[2] Animal studies in rats showed less hemorrhagic transformation of infarct in rivaroxaban or apixaban pretreated rats compared to warfarin pretreated rats due to the reduced matrix metalloproteinase (MMP-9) expression by the anti-factor Xa inhibitors.^[3] Another multicenter observational cohort study reported that the patients on NOACs who underwent revascularization with intravenous thrombolysis for an acute ischemic stroke have a safety profile compared to when used in patients on subtherapeutic Vitamin K antagonist treatment or in those not on any anticoagulation.^[4] This case adds to this point that apixaban-treated patients can also be candidates for thrombolysis. A subgroup of patients with low drug levels could be eligible for thrombolysis, but identifying these patients at the emergency setting is difficult. A point of care device for the detection of three NOACs in emergency was feasible in a recent study.^[5] Many patients might have missed a single dose and could be exposed to risk of stroke. Significant drug or food interaction of factor Xa inhibitors due to intestinal P glycoprotein (P-gp) inhibition while taking ayurvedic medications containing phytates and

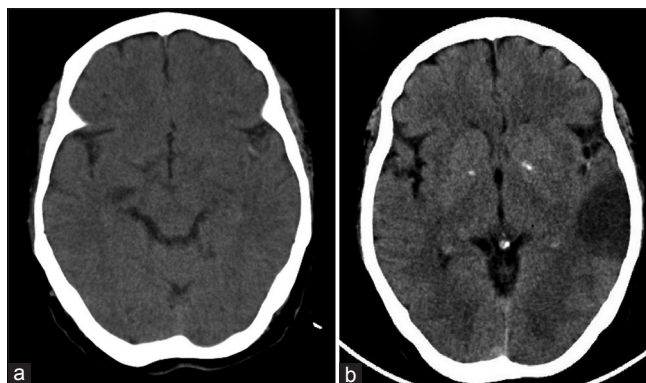


Figure 1: (a) Plain computed tomography brain after 3 h of stroke with hyperdense left middle cerebral artery. (b) 24 h computed tomography brain with evolved infarct and disappearance of hyperdense artery

other plant extracts could be a possible cause of poor drug levels and thrombus formation.^[6] Adequate awareness of this possible interaction should be emphasized to the patient during the anticoagulation counseling. Implementation of point of care device detecting anti-factor Xa will be an optimum step to plan intravenous thrombolysis as large number of patients will be on NOACs in the coming future.

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Conflicts of interest

There are no conflicts of interest.

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