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Stroke Note

Accidental Thrombolysis in a Stroke Patient Receiving Apixaban

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Introduction

Intravenous thrombolysis (IVT) with recombinant tissue plasminogen activator (rt-PA) is contraindicated in stroke patients receiving oral anticoagulants [1]. Knowledge of current medication is therefore necessary before commencing IVT. In the emergency setting, point-of-care (POC) coagulation devices provide rapid international normalized ratio (INR) measurements [2]. However, current POC devices that are used to monitor vitamin K antagonists are not always suitable for accurately measuring anticoagulant activity of the new oral anticoagulants (NOACs) [3]. We report an 'accidental' thrombolysis in a stroke patient in whom treatment with apixaban, a NOAC that inhibits factor Xa (FXa), became apparent only after the completion of IVT.

Case Report

An 83-year-old male with a history of arterial hypertension and diabetes developed acute right-sided hemiparesis and fluent aphasia (NIHSS score on admission: 4). He arrived at our hospital 45 min later. On admission, his blood pressure was 160/70 mm Hg; atrial fibrillation was detected on electrocardiography. Cranial computed tomography (cCT) revealed no early signs of cerebral ischemia or intracranial hemorrhage (ICH). The patient was unable to self-report his drug history due to persisting aphasia. The INR measured by a commercial POC device was within normal range (1.00; normal 0.85–1.18). IVT (rt-PA 0.9 mg/kg) was initiated 80 min after symptom onset and before all laboratory findings were received. Around 20 min after IVT had commenced, coagulation parameters were normal [including INR (1.10), thrombin time (18.8 s; normal 14–21), partial thromboplastin time (34.8 s, normal 23–36) and platelet counts]. A follow-up cCT ruled out IVT-induced ICH and the patient fully recovered within 48 h (NIHS score: 0). At this stage, he was able to report regular intake of apixaban (Eliquis®, 2.5 mg t.i.d.) since April 2014 due to atrial fibrillation. The last apixaban tablet had been taken 13.5 h before IVT.

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Discussion

Stroke patients are frequently unable to report their drug history because of accompanying neurologic symptoms such as aphasia or unconsciousness. This is especially problematic for those receiving oral anticoagulants, owing to the increased risk of ICH during IVT [4].

The current report underlines the urgent need to develop POC devices specific for the rapid determination of the anticoagulatory effect of NOACs, similar to those used for vitamin K antagonists [5]. Furthermore, it raises the question of whether NOAC plasma levels should be routinely measured prior to IVT, particularly considering the growing use of NOACs [6]. Laboratory testing of NOAC plasma concentrations is time-consuming, and the lower threshold, which would allow 'safe' IVT, has not yet been established [3]. Moreover, 24/7 availability is restricted to large hospitals. Recent evidence suggests that the measurement of 'surrogate markers' such as thrombin time or anti-FXa may enable the quantification of factor IIa and FXa inhibitors, respectively, although various confounding factors may impact the assay results [7–9].

In summary, stroke patients with a considerable chance of receiving NOACs, e.g. those with known atrial fibrillation or a history of venous thrombosis, should be intensely screened prior to IVT, even if NOAC intake was excluded on an anamnestic basis.

Disclosure Statement

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