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Case Report

Intravenous thrombolysis of ischemic stroke after reversal of the effect of dabigatran by idarucizumab

Thrombolyse intraveineuse d'un AVC ischémique après inversion de l'effet du dabigatran par l'idarucizumab

Z Mamadou [1; 2], M Toudou Daouda[2] , H Assadeck[2] , O Heinzlef[1]

Abstract

Idarucizumab, the first specific antidote for a direct oral anticoagulant (AOD). This antidote allows immediate and complete neutralization of the action of dabigatran. We report the case of intravenous thrombolysis of a right deep middle cerebral artery stroke in a 71-year-old patient on dabigatran for atrial fibrillation after neutralization of the anticoagulant effect of the latter with idarucizumab with good clinical progress and resumption of effective anticoagulation at one week of his vascular event.

Keywords: Stroke, Thrombolysis IV, Dabigatran - Idarucizumab

Résumé

L'idarucizumab est le premier antidote spécifique pour un anticoagulant oral direct (AOD). Cet antidote permetune neutralisation immédiate et complète de l'action du dabigatran. Nous rapportons le cas d'une thrombolyse intraveineuse d'un AVC de l'artère cérébrale moyenne profonde droite chez un patient de 71 ans sous dabigatran pour fibrillation auriculaire après neutralisation de l'effet anticoagulant de l'idarucizumab avec un bon progrèsclinique et reprise d'une anticoagulation efficace à unesemaine de son événementvasculaire.

Mots clés: AVC, Thrombolyse, intraveineuse, Dabigatran, Idarucizumab.

Introduction

Oral anticoagulants (AVK and direct anticoagulants: AOD) significantly reduce the risk of ischemic stroke in atrial fibrillation (AF), but every year 1-2% of treated patients have ischemic cerebral events [1]. However, anticoagulant therapy is theoretically a contraindication to intravenous fibrinolytic (IV) treatment of ischemic stroke. Idarucizumab, the first specific antidote for an AOD.

This antidote allows immediate and complete neutralization of the action of dabigatran.

The objective of this work is to report a clinical

case of intravenous thrombolysis (IVT) of ischemic stroke after idarucizumab use in a dabigatran patient for atrial fibrillation.

Case Report

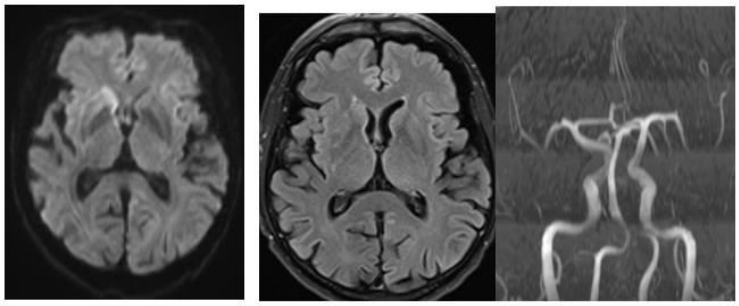
This is a 71-year-old patient with pathological antecedents of arterial hypertension and atrial fibrillation (AF) in dabigatran (150 mg twice, last dose, at 8:00 am), aortic dissection of type I. Admitted in the context of an alert thrombolysis for a motor deficit of the left hemi-body of sudden occurrence on 15/02/18 at 13H50.

Clinic it presents left ataxis hemiparesis, a discreet central facial palsy and comprehensible dysarthria with a score of NIHSS at 6.On cerebral MRI an ischemic stroke of the deep right middle cerebral artery with slow flow to the T2 / flair sequence is negative, there is no proximal artery occlusion (Picture A, B and C).

The plasma dosage of dabigatran was 187 ng / ml. The indication for treatment with intravenous thrombolysis was put and the patient benefited from a reversal of the effect of dabigatran by 50ml (ie 5g) of idarucizumab intravenous infusion of ten minutes.Followed immediately by the TIV by r-tpa. The NIHSS score was unchanged at one hour of treatment, whereas the latter was at zero to twenty four hours (24 hours) of thrombolysis.

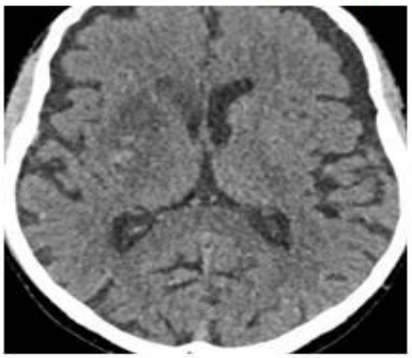
We note the presence of a discrete hemorrhagic transformation to the brain CT-scan at 24 hours of thrombolysis (Picture D). The post TIV hemostasis assessment was normal without any particularity. Resumption of anticoagulant at seven days of stroke. The modified Rankin score (mRS) was zero to 6 months of evolution.

Picture A, B and C MRI (diffusion, T2/Flair and 3DTOF).



A : Diffusion B : T2/FLAIR C : 3DTOF

Picture D : CT-Scan (24H)



D : CT-Scan

Discussion

In terms of efficacy, direct oral anticoagulants have demonstrated non-inferiority, or even superiority in some subgroups, compared to anti-vitamin K for the prevention of ischemic stroke in patients with atrial fibrillation[2].However, there are small differences in safety in terms of the incidence of bleeding between different direct oral anticoagulants, and a better safety profile when they are taken twice a day**[1]**. To date, only one AOD has an inversion agent. Idarucizumab available, an antidote for the anticoagulant

effect of dabigatran.Idarucizumab is a monoclonal antibody with an affinity for dabigatran 350 times that of thrombin. This antidote allows immediate and complete neutralization of the action of dabigatran. In contrast to prothrombin complex concentrates, because of its mechanism of action, idarucizumab theoretically has no pro-thrombotic effect**[3]**. According to the recommendations of learned societies including the French neurovascular society (SFNV), in front of a cerebral infarction chart without proximal artery occlusion with indication of treatment by intravenous thrombolysis in patients under dabigatran whose last taken to less than 12H (As in our patient), the result of the specific plasma test of dabigatran should not delay the reversion by the antidote and then immediately followed by the start of r-tpa **[3]**.The standard dose of ideracizumab is 5g in rapid intravenous infusion [4,5].

The largest series of IV thrombolysis after reversal of the effect of dabigatran has been reported in a German retrospective study using the databases of 22 centers of neurology and neurosurgery using idarucizumab between January and August 2016. Thirty-one (31) patients with stroke received idarucizumab. Nineteen (19) patients treated with dabigatran had ischemic stroke and 12 patients had intracranial bleeding. IV thrombolysis was performed in 18 patients meeting the criteria, after reversal of the effect of dabigatran by idarucizumab. No case of haemorrhagic complication **[6].** Several isolated clinical cases report IV thrombolysis following idarucizumab use in patients without proximal occlusion, without hemorrhagic or thrombotic complications **[7,8,9].**

Recently a systematic review of cases reports 55 cases of IV thrombolysis after use of the antidote of dabigatran. Among these patients, women represent 43.6%; the average age was 74.35 ± 11.32 years old. Personal history revealed hypertension in 23.26%, diabetes in 13.95%, dyslipidemia in 6.98% and previous stroke in 11.63%. Forty-five of these patients had a good clinical outcome, ie 81.9% of the cases; while it remains stationary in four patients and unfavorable in six (including four cases of death) **[10].**

Conclusion

In this clinical case, idarucizumab neutralized the anticoagulant effect of dabigatran, and r-tPA treatment was safe for the patient. The resumption of effective anticoagulation at one week of stroke. The patient completely recovered and satisfied with our care.

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*__Correspondence__

Mamadou Zakaria

(mamadouzakaria1@hotmail.fr)

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1. Department of Neurology of the intercommunitary hospital center of Poissy-Saint Germain, France
2. Department of Neurology, National Hospital of Niamey, Niger

Conflict of interest : None

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