CASE REPORT

RECOMBINANT ACTIVATED FACTOR VII FOR BILATERAL SPONTANEOUS BASAL GANGLIA HAEMORRHAGE WITH TETRAVENTRICULAR EXTENSION-CASE REPORT

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ABSTRACT

Bilateral spontaneous basal ganglia haemorrhages with intraventricular extension are rare cases in clinical practice. We report one such case of a 65-year-old woman with a history of untreated hypertension and mixed dyslipidemia brought to the emergency room by her family within one hour after symptoms onset. The non-contrast brain computed tomo-graphy (CT) scan revealed bilateral basal ganglia haemorrhage with tetraventricular extension. The patient received a single dose of recombinant activated factor VII (rFVIIa) 20 μ/kg, and repeated CT scans were used to monitor the brain lesions. By the time she was discharged, patient experienced almost a complete remission of her neurological symptoms and resorption of the bleeding.

KEYWORDS: Bilateral spontaneous basal ganglia haemorrhage, tetraventricular extension, recombinant activated factor VII

1. Introduction

Bilateral spontaneous basal ganglia haemorrhages with intraventricular extension are rare cases in clinical practice, generally associated with a poor outcome. [1]

The particularity of this case lies not only in the bleeding topography. It is also one of the cases receiving one-shot therapy with rFVIIa during hyperacute stage of intracerebral hemorrhage.

It is now recognized that almost a third of patients have significant expansion of their hemorrhage in the first few hours after presentation. [2] rFVIIa significantly reduce intracerebral hemorrhage (ICH) expansion when given within first few hours of onset and improve patients survival outcome. [3]

2. Case report

A 65-year-old women was brought to the emergency room by her family within one hour of onset severe headache, vomiting and mild left sided weakness triggered by an emotional conflict. The patient had a long history of untreated hypertension and mixed dyslipidemia. Family denied any history of
trauma or toxic abuse. Physical exam revealed a blood pressure of 195/100 mmH and a pulse of 86/’.

Laboratory test results have shown hypercholesterolemia (cholesterol 316 mg/dl), hypertriglyceridemia (triglyceride 219 mg/dl) and hyperglycemia (blood glucose 183 mg/dl). Other laboratory tests (complete blood count, coagulation tests, serum electrolytes, liver and kidney function tests) were in the normal ranges.

Non-contrast CT scan of the brain performed on hospital admission showed: intraparenchymal hematoma involving the right basal ganglia (34/25 mm in size) with mass effect upon the ventricular system, a small haemorrhage (10/6 mm in size) of the left basal ganglia and tetraventricular extension (Figure 1).

A diagnosis of bilateral spontaneous basal ganglia haemorrhage with tetraventricular extension was made.

The patient received a singleshot of rFVIIa 20 μ/kg. High blood pressure and hyperglycemia were properly treated.

Patient was followed up and monitored throughout her clinical course and repeat CT scans 5 and 15 days later were analysed (Figures 2 and 3).

On the second day of hospitalization, patient’s mental status improved revealing her anterograde amnesia during the 48 hours elapsed since the symptoms onset and recent bilateral hypoacusis, subsequently confirmed by audiometric measures. Patient had no history of ear disease.

She had an extremely favorable clinical course with almost complete remission of her neurological symptoms and resorption of the bleeding.

After 15 days, patient was discharged from the hospital with no evident motor deficit but with persistence of anterograde amnesia and bilateral hypoacusis.

Today, almost 2 years after her hospital discharge, the patient visit us regularly and is in a very good post-stroke health.

3. Discussions

Bilateral spontaneous basal ganglia haemorrhages with intraventricular extension are rare cases in clinical practice. (1) Elevated blood pressure is found in over 90% of patients acutely, even if there is not a prior history of hypertension. [4]

Typical features found in many patients include focal neurologic signs, headache, nausea, vomiting and alterations in the level of consciousness. [5] Rare bilateral putaminal haemorrhages have been reported to cause cortical deafness or amnesia. [6,7]

Prognosis depends upon a variety of factors: age, degree of impairment of consciousness, topographic localization and volume of haemorrhage, intraventricular extension. [5,8,9]
Among modifiable factors, hematoma expansion may have a predominant role. [10]

„Spot Sign” is a biomarker defined by contrast extravasation on CT angiography (CTA). A recent prospective, international study, validating the utility of the „spot sign” for hematoma growth, supports the continued investigation of „spot sign” stratification for haemostatic treatment. [11-13]

So far there is no specific drug therapy for brain haemorrhage, but there are numerous ongoing clinical trials to evaluate efficacy of rFVIIa in the early stages of bleeding. [3,13]

Ultra-early rFVIIa, within the first few hours of ICH onset has been shown to significantly reduce neurological deterioration. This can be achieved by limiting the extent of the hematoma and rebleeding prophylaxis. [3]

Proper selection of patients at high risk for haematoma expansion seems crucial to improve outcomes. Rigorous scientific investigation in clinical trials should bring additional information about "spot sign" as a target for selecting patients for rFVIIa.[12,13]

4. Conclusions

Bilateral spontaneous basal ganglia haemorrhages with intraventricular extension are rare cases in clinical practice and are associated with a poor prognosis.

Single-shot therapy with rFVIIa during hyperacute stage of intracerebral hemorrhage, was followed by improvement of clinical course.

We have a modest experience with only 40 cases with intracerebral haemorrhage treated with rFVIIa.

Even though he generated much controversy over time, we strongly believe that rFVIIa is not history for the management of brain haemorrhage in non-hemophilia patients.

If tissue plasminogen activator (tPA) proved to be a "cost-effective" strategy for the management of acute ischemic stroke according to standard selection criteria, despite its high cost and increased incidence of haemorrhagic side effect, we believe that rFVIIa could play its role in the brain haemorrhage treatment.

Scientific investigation in clinical trials should bring additional information that could lead to development of a algorithm stratification for this type of therapy.

References