

Tranexamic Acid for Recurring Subdural Hematomas Following Surgical Evacuation Rafael A. Vega MD, PhD; Joel Michael Stary MD; Leslie Marian Hutchins MD Department of Neurosurgery, Harold F. Young Neurosurgical Center, Virginia Commonwealth University Health System, Medical College of Virginia Hospitals, Richmond, VA, USA



Introduction

Chronic subdural hematomas (SDH) are commonly encountered in neurosurgery. Optimal management of SDHs remains a significant challenge. Current treatment options generally include supportive care or surgical intervention. A significant proportion have surgery; however, the reoperation rate is considered high. Additionally, there are cases in which additional surgical procedures would carry significant morbidity, and as a result, there is a need for nonsurgical medical therapies. Herein, we describe the use of tranexamic acid (TXA) as a nonsurgical option for the treatment of recurrent SDHs following surgery.

Rationale

Recently, TXA has been demonstrated on select patients as a primary medical therapy for preventing the progression of chronic SDHs. TXA is a lysine analog, that binds plasmin and plasminogen (competitive, reversible inhibition). Based on the evaluation of fluid collections, SDHs have high levels of fibrinolytic activity, inflammatory cytokines, and angiogenic cytokines.



Methods

Patients were identified as candidates for potential TXA therapy and followed prospectively. TXA was administered as 650mg daily for 1 month. The decision to administer TXA were made on the basis of history, presentation, and prognosis after further surgical intervention. Data collected included patient imaging, treatment administered, and both radiological and clinical outcomes.

Results

In our clinical case series, three patients underwent surgical evacuation of a chronic subdural hematoma (2 via burr hole washout, 1 via craniotomy). All patients had recurrence identified on subsequent imaging. Two patients had poorer predicted outcomes if additional surgical intervention was necessary, while for one, additional surgical intervention was refused. TXA was administered, in the same dosing and scheduled course, to all patients. Complete resolution was observed on imaging, and in the case of the patient who was symptomatic, clinical improvement was also noted.



Radiographic studies with (A) magnetic resonance imaging showing acute subdural hematoma at presentation, with computed tomography images of (B) 2-week follow-up

postoperatively, with accumulation of now chronicappearing fluid and persistent midline shift, and with (C) complete resolution at 1-month follow-up after the course of tranexamic acid.

Conclusions

TXA may be considered for treatment of recurrent subdural hematomas following surgical evacuation in patients for whom additional surgery would add significant morbidity.

- -TXA likely affects fibrinolysis and inflammatory pathways (inhibits hyperfibrinolytic activity)
- -TXA may also decrease inflammatory activity through associated pathways
- -Can be used safely in a small group of patients as an alternative to surgery (with no apparent adverse effects)-Additional stuides and more patients are needed

Learning Objectives

By the conclusion of this session, participants should be able to: 1) Describe the mechanism of TXA and its effect on SDHs; 2) Discuss how and to whom this treatment should be applied to; 3) Identify an effective treatment strategy for patients in which additional surgical procedures carry significant risks.

References

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