

Niizuma H, Otsuki T, Johkura H, et al. CT-Guided Stereotactic Aspiration of Intracerebral Hematoma - Result of a Hematoma-Lysis Method Using Urokinase. *Appl Neurophysiol.* 1985; 48:427-430

[8] Niizuma H, Shimizu Y, Yonemitsu T, et al. Results of Stereotactic Aspiration in 175 Cases of Putaminal Hemorrhage. *Neurosurgery.* 1989; 24: 814-819

Tan et al compared the use of urokinase-type plasminogen activator (uPA), an alternate thrombolytic, with that of tPA in a preclinical study.

Intracerebral hemorrhage was induced in adult male Sprague-Dawley rats by injecting autologous blood into the caudate, followed by intraclot fibrinolysis without drainage. Rats were randomized to receive uPA, tPA, or saline within the clot. Hematoma and perihematoma edema, brain water content, Evans blue fluorescence and neurological scores, matrix metalloproteinases (MMPs), MMP mRNA, blood-brain barrier (BBB) tight junction proteins, and nuclear factor- κ B (NF- κ B) activation were measured to evaluate the effects of these 2 drugs in ICH.

In comparison with tPA, uPA better ameliorated brain edema and promoted an improved outcome after ICH. In addition, uPA therapy more effectively upregulated BBB tight junction protein expression, which was partly attributed to the different effects of uPA and tPA on the regulation of MMPs and its related mRNA expression following ICH.

This study provided evidence supporting the use of uPA for fibrinolytic therapy after ICH. Large animal experiments and clinical trials are required to further explore the efficacy and safety of uPA in ICH fibrinolysis ¹⁾.

¹⁾

Tan Q, Chen Q, Niu Y, Feng Z, Li L, Tao Y, Tang J, Yang L, Guo J, Feng H, Zhu G, Chen Z. Urokinase, a promising candidate for fibrinolytic therapy for intracerebral hemorrhage. *J Neurosurg.* 2016 Apr 22:1-10. [Epub ahead of print] PubMed PMID: 27104852.

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