

## Letter to the Editor

*Comment on "The Enhancing Effect of Focused Ultrasound on TNK-Tissue Plasminogen Activator-Induced Thrombolysis Using an In Vitro circulating Flow Model"*

The objective of the study by Papadopoulos et al. was to evaluate the effect of various parameters such as temperature, focused ultrasound (FUS) energy, FUS frequency, acoustic power, and microbubble administration on tenecteplase (TNK)-tissue plasminogen activator-mediated thrombolysis and therefore, to establish a treatment protocol that maximize thrombolysis efficacy. For this purpose, an in vitro circulating flow clot model was designed to reproduce a middle cerebral artery occlusion.

Being iso-osmotic, blood plasma was promptly identified by our group as an appropriate fluid for our flow model. However, degassed water was used instead, since it was not practically possible to collect, store, and process large volumes of porcine blood (dozens of liters) required for isolating adequate number of plasma samples and conducting multiple parametric studies.

In agreement to the reviewer's comments, our experimental group also believes that the use of degassed water

possibly reduced the efficacy of thrombolytic drug (due to faster clearance), but nevertheless our study findings clearly demonstrated the correlation of the investigated parameters with the efficacy of FUS on TNK-tPA-induced thrombolysis.

In order to simulate more realistic physiological conditions of stroke, our research group will conduct further parametric studies, using plasma as fluid for the circulating flow clot model. By applying the same treatment protocol, the effect of the aforementioned parameters on TNK-tPA-mediated thrombolysis will be re-evaluated to confirm results.

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