A previous study suggested that WUS onset time is close to wake-up time [2]. For this reason, WUS might respond to thrombolytic therapy. The clinical benefits of acute thrombolytic therapy for IS patients requires the presence of a salvageable penumbra. Considering the estimated previously reported penumbra rates, Koton et al. estimated that 164–328 of 820 WUS patients could be additional potential candidates for reperfusion therapy. Similarly, a recent population-based study in the USA also suggested that at least one third of the WUS patients would have been eligible for intravenous tissue plasminogen activator therapy if time were not a factor [5]. Because the NASIS study did not directly estimate the number of salvageable penumbra in all patients, the exact number of patients who were really considered potential candidates for reperfusion therapy in NASIS was unclear. I hope that the NASIS study, including evaluation of penumbra and accurate estimation of candidates for thrombolytic therapy, will be repeated.

Efforts to increase the number of IS patients who receive thrombolytic therapy are necessary and under way. In addition to reduction of stroke-to-hospital or door-to-needle times, extension of the time window for therapy in individual patients by detection of a salvageable penumbra (for example, by multimodal magnetic resonance imaging such as diffusion-weighted imaging/fluid-attenuated inversion recovery mismatch) may allow estimation of the potential individual benefits and risks of thrombolytic therapy. Neuroimaging-guided decision making for thrombolysis might be appropriate for a considerable number of WUS patients. Some researchers have reported thrombolytic treatment in WUS patients. The Abciximab Emergent Stroke Treatment Trial-II (AbESTT-II) investigations initially included WUS patients as part of the eligible prospective study population receiving intravenous abciximab treatment but stopped enrolling these patients because the rate of symptomatic intracranial haemorrhage was unacceptably high [6]. Other investigations have reported better results in retrospective studies [7, 8]. We need to know how to reliably identify WUS patients who have a prolonged therapeutic window and may be good candidates for thrombolytic treatment without increased risk of symptomatic intracranial haemorrhage. Using predefined imaging criteria for WUS patient selection, several ongoing prospective clinical trials testing the safety and efficiency of thrombolytic treatment [2] may provide important clues in developing optimal treatment strategies for WUS patients.

Disclosure Statement
The author has no conflicts of interest.
Can We Extend Thrombolytic Treatment for Wake-Up Stroke?

References


