Supplementary data

Details of serial lectures

1. We held 1 to 2 lessons every month, and the duration of each lesson was approximately 30 to 45 minutes. Our lectures comprised 2018 and 2019 American Stroke Association/American Heart Association Guidelines for the Early Management of Patients With Acute Ischemic Stroke, Taiwan Stroke Society Guideline for Intravenous Thrombolysis in Acute Ischemic Stroke Patients, and the latest stroke-related publications in journals, such as *Neurology*, *Stroke*, and *the New England Journal of Medicine*.
2. Online National Institutes of Health Stroke Scale (NIHSS) lessons (http://www.nihstrokescale.org/)
3. Tissue plasminogen activator (tPA) pharmaceutical lecture: We held a lesson every year in which every resident was taught the proper method of dissolving and preparing tPA solution.

Details of serial evaluations

1. NIHSS evaluation: Each junior resident was required to pass the online NIHSS exams (http://www.nihstrokescale.org/).
2. Advanced Neurological Life Support (ANLS) license: Each junior resident was required to obtain the ANLS license.
3. Certificate in tPA preparation: Each junior resident was required to qualify in tPA preparation according to the checklist.
4. Acute Stroke Scenario Simulation: Each junior resident was required to pass the simulation case training. Each of the scenarios required the resident to assess the indication for tPA and endovascular thrombectomy therapy. In addition to preparing the therapeutic plans, the residents were required to obtain patient consent for each therapy according to their plans. Some of these scenarios comprised clinical challenges, including:
    a. Age >80 years
    b. Stroke onset within 3 to 4.5 hours
    c. Stroke with rapidly improving conditions
    d. Nondisabling or disabling stroke with low NIHSS
    e. Direct use of oral anticoagulants by patients experiencing stroke

Ex.

Ms. Lin, aged 77 years, had an underlying hypertension controlled with regular medication. Today, she walked to the toilet by herself at 4:00 AM, and afterwards, she went back to bed and slept. She woke up again at 7:30 AM and felt weakness in her right arm and leg and was unable to get out of bed on her own. She arrived at the emergency room at about 8:00 AM. Computer tomography of the head showed intracerebral bleeding, and the NIHSS score was 10. How should I explain the following treatment choices to the patient and family?

Supplementary Table 1. Mean DTN time per period after adjusting calendar year by linear regression analysis

Variable	DTN, estimate (95% CI)	*P*
Model 1*		
Time (/yr)	−4.87 (−7.80 to −1.93)	0.002
Model 2†		
2015/8–2016/7	Reference	
2016/8–2017/7	6.28 (−7.86 to 20.41)	0.378
2017/8–2018/7	−3.85 (−17.33 to 9.62)	0.569
2018/8–2019/7	−9.79 (−23.27 to 3.69)	0.151
2019/8–2020/9	−16.54 (−29.53 to −3.56)	0.014

DTN, door-to-needle; CI, confidence interval.

*In the model 1, year of admission was used as an interval variable and the data showed it was independently associated with gradual reduction of mean DTN time; †In the model 2, the year of admission was further stratified according to the time of intervention. We used the mean DTN time during 2015/8–2016/7 as the reference. The year of admission was not statistically independently associated with the gradual reduction of DTN time before the implementation of education program (2018/8).