Original Article

Trend in Recombinant Tissue Plasminogen Activator (rtPA) Use for Ischemic Stroke in Thailand: Geographic Inequality, Cost of Treatment and Impact on 30-Day Case Fatality Rate

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Objective: To investigate trend of using thrombolysis in ischemic stroke patient under Universal Health Coverage Scheme from fiscal year 2011 to 2014 and explore cost of treatment and the effect of rtPA use on clinical outcome among patient who received and did not received rtPA.

Materials and Methods: The present analysis used 3 datasets comprised of the inpatient database of the Universal Health Coverage (UC) from the National Health Security Office, operating cost of hospitals from division of the Health Insurance, Ministry of Public Health and the Civil Registration Database from the Ministry of Interior. Patients with ischemic stroke in fiscal year 2011 to 2014 were retrieved based on the ICD10 code of I63. The 30-day case fatality was identified by using the date of death from the Civil Registration Database. Logistic regression was performed to compare 30-day case fatality between patient who received and did not receive rtPA with adjusted by sex, age, Charlson comorbidity index and year of admission.

Results: The rate of thrombolytic treatment has increased from 1.6% in 2011 to 3.8% in 2013. The percentage of rtPA treatment among male and female did not differ. The patients treated with rtPA were slight younger age, while Charlson comorbidity index did not differ. The geographical inequality of rtPA treatment gradually declined over time. Cost of treatment in rtPA usage was 4 times higher than without rtPA. The patients treated with rtPA had an increasing 30-day case fatality rate of 11% (OR 1.11, 95% CI 1.03-1.21) compared to those without rtPA after adjustment for other variables.Conclusion: The rate of using rtPA in universal health coverage scheme has been increasing during the study period but it remained low. More detail data collection is needed in the future to evaluate the benefit of rtPA use in Thailand.

Conclusion: The rate of using rtPA in the Universal Health Coverage Scheme has been increasing during the present study period but remained low. More detail data collection are needed in the future to evaluate the benefit of rtPA use in Thailand.

Keyword: Ischemic stroke, Thrombolysis rate, Recombinant tissue plasminogen activator, Cost of treatment

J Med Assoc Thai 2018; 101 (7): 875-81
Website: http://www.jmatonline.com

Stroke is a common cause of death and a leading cause of disability in Thailand. In 2013, it was the leading cause of deaths among both females and males[(1)]. Thrombolytic therapy with recombinant tissue plasminogen activator (rtPA) has been recommended as standard treatment for acute ischemic stroke patients in many countries[(2,3)], mainly because it reduces the patient's disability[(4)]. Thailand has achieved the Universal Health Coverage (UHC) under the three main public health insurance schemes namely: Civil Servant Medical Benefit Scheme for about 10 million beneficiaries of civil servants and their dependents, Social Health Insurance Scheme for about 10 million private workers and Universal Health Coverage Scheme (UC Scheme) for the majority of Thai people about 47 million populations, 75% of total population. Due to data limitation, the present study mainly focuses on the UC Scheme only.

The utilization rate of thrombolysis for patients who had an ischemic stroke under the UC scheme was less than 0.1% during 2005 to 2007. Thus, the National Health Security Office (NHSO) encouraged their providers to establish a fast-track system to reduce the delay in accessing thrombolysis and explicitly included

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How to cite this article: Vongmongkol V, Tangcharoensthien V, Greetong T, Mcneil E, Chongsuvivatwong V. Trend in recombinant tissue plasminogen activator (rtPA) use for ischemic stroke in Thailand: geographic inequality, cost of treatment and impact on 30-day case fatality rate. J Med Assoc Thai 2018;101:875-81.