TEMPORARY TRENDS IN DOOR-TO-NEEDLE TIME AND OUTCOME AFTER INTRAVENOUS THROMBOLYSIS BETWEEN 2010-2017: NATION-WIDE STUDY

Robert Mikulík¹, Michal Bar², Silvie Bělašková¹, Roman Herzig³, Jiří Neumann⁴, Daniel Šaňák⁵, Ondřej Škoda⁶, David Školoudík⁷, Aleš Tomek⁸, Daniel Václavík⁹ on behalf of Czech Stroke Unit Network

1 International Clinical Research Center and Department of Neurology, St. Anne's University Hospital, Brno, Czech Republic, 2 Neurology, University Hospital Ostrava, Ostrava, Czech Republic, 3 Faculty of Medicine and University Hospital, Hradec Kralove, Czech Republic, 4 Department of Neurology and Stroke Center, County Hospital Chomutov, Chomutov, Czech Republic, 5 Comprehensive Stroke Center, Department of Neurology, Palacký University Hospital, Olomouc, Czech Republic, 6 Neurological department, Hospital Jihlava, Jihlava, Neurological department, 3rd Medical Faculty, University Hospital Kralovske Vinohrady, Prague, Czech Republic, 7 Department of Neurology and Center of Clinical Neuroscience, Charles University, 1st Faculty of Medicine and General University Hospital, Prague, Czech Republic, Department of Nursing, Faculty of Health Science, Palacký University Olomouc, Czech Republic, 8 Department of Neurology, 2nd Faculty of Medicine, Charles University and University Hospital Motol, Prague, Czech Republic, 9 Department of Neurology, Hospital Ostrava Vitkovice, Ostrava, Czech Republic

Background

- Shorter door-to-needle time (DNT) was associated with improved outcome after intravenous thrombolysis.
- We present temporary trends in DNT at population level and outcome after intravenous thrombolysis.

Methods

- Czech Stroke Society has established quality improvement program to shorten DNT.
- This program includes:
 - monthly monitoring on DNT in all stroke centers,
 - simulation training,
 - video-records of real thrombolytic cases.
- Hierarchical generalized linear model identified association between year and outcome independently from pre-specified baseline variables.
- Two outcome measures: mRS 0 or 1 and any parenchymal hemorrhage.
- Data between January 2010 and July 2017 were analyzed.

Results A

Of 18691 patients enrolled, 14832 (79%) had available data: age 70 ± 13 , NIHSS-baseline median 7.

Mean DNT dropped: 78 (95%CI:75-81) minutes in 2010 and 39 (95%CI:36-42) minutes in 2017.

Results B

In the same time period, proportion of patients with mRS 0-1 increased from 387 (36%) to 851 (58%).

Results C

Proportion of patients with parenchymal hemorrhages dropped from 99 (7.8%) to 76 (3.8%).

Year was independently associated with mRS 0-1 and parenchymal hemorrhage.

Conclusion

- At population level, thrombolysis is performed faster in recent years and outcome after intravenous thrombolysis better, which may be partly due to less intracerebral hemorrhages.
- Nation-wide quality improvement program proved to be effective.