

CANADIAN STROKE CONSORTIUM (CSC)

B.1

Safety and effectiveness of intravenous thrombolysis for acute stroke patients in the Manitoba TeleStroke Program

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doi: 10.1017/cjn.2025.10153

Background: TeleStroke can improve access to stroke care in rural areas. We aim to evaluate the safety and effectiveness of intravenous thrombolysis in our TeleStroke system. **Methods:** The Manitoba TeleStroke program was rolled out across 7 sites between November 2014 and January 2019. We retrospectively analyzed prospectively collected consecutive acute stroke patients' data in this duration. The primary outcome was safety and effectiveness measured in terms of 90-day modified Rankin score (mRs). The number of acute ischemic stroke (AIS) patients receiving thrombolysis and endovascular thrombectomy [EVT] and process metrics were also analyzed. R/RStudio version-4.3.2 was used ($p < 0.05$). **Results:** Of the 1,748 TeleStroke patients (age 71 years [IQR 58-81], female 810[46.3%]), 696 were identified as AIS. Of these, 265(38.1%) received thrombolysis and 48(6.9%) EVT. Ninety-day mortality was 53(20.0%) among those receiving thrombolysis and 117(44.2%) had a favorable outcome (mRs ≤ 2). Of those who received intravenous thrombolysis, 9 patients (4.2%) were found to have symptomatic intracranial hemorrhage. The median last-seen-normal (LSN)-to-door was 121 minutes and the median door-to-needle, 55 minutes. **Conclusions:** Intravenous thrombolysis was found to be effective with acceptable safety. TeleStroke improved overall access to stroke care and played an important role in identifying AIS patients eligible for thrombolysis and EVT.

B.2

Association between age, frailty, and thrombectomy for ischemic stroke

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doi: 10.1017/cjn.2025.10154

Background: Association between age, frailty, and the receipt of thrombectomy for acute ischemic stroke is not well understood. **Methods:** We conducted a population-based retrospective cohort study of adults hospitalized with an ischemic stroke between 2018 and 2022 in Ontario, Canada. In sex-stratified models, we studied whether frailty (based on hospital-based frailty index: mild, moderate and severe) modified the

association between age and thrombectomy by using interaction terms in multivariable modified Poisson regression models. **Results:** Among 59,346 patients (median age 75 years, 47.0% female) with ischemic stroke 4,454 (7.5%) received thrombectomy, with no sex differences in this treatment. In both sexes, increasing age was associated with decreased use of thrombectomy (adjusted risk ratio [aRR] for every 5-year increase, female = 0.91; 0.89-0.92; male = 0.92; 0.90-0.94). Frailty was not associated with thrombectomy in females (aRR high vs. low frailty = 0.86; 0.68-1.10) or males (aRR high vs. low frailty = 1.10; 0.87-1.39). Furthermore, the interaction between age and frailty was not significant for either sex. **Conclusions:** Frailty was not associated with thrombectomy in either sex, and it did not modify the association between age and thrombectomy, suggesting a greater role of chronological age compared to frailty in thrombectomy decisions in ischemic stroke patients.

B.3

Early motor cortex dysconnectivity and compensatory neuronal reactivity in acute stroke is dependent on the side of stroke

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doi: 10.1017/cjn.2025.10155

Background: We aim to assess the resting state functional connectivity (RSFC) and reactivity with functional near-infrared spectroscopy (fNIRS) in patients with acute stroke compared to age, sex and comorbidity-matched subjects. **Methods:** Patients with acute anterior circulation stroke syndrome localizing to the right (RH) or left hemisphere (LH) were enrolled. RSFC was assessed using group-level seed-based (Primary Motor cortex, PMC) correlation analysis. Finger-tapping-associated relative oxygen Hemoglobin (ΔHbO) changes were analyzed with generalized linear model regression. **Results:** 127 participants (RH stroke, 51; LH stroke, 43; control, 33) enrolled at a median of 21 (15,29) hours after symptom onset. Compared to the control group, the RSFC with the affected PMC (LH stroke) was reduced over the affected somatosensory cortex (SSC) in the minor ischemic stroke (IS) ($r = -0.14$ (-0.3,-0.01)), minor intracerebral hemorrhage (ICH) (-0.48 (-0.78,-0.18)) and major ICH groups (-0.2 (-0.4,-0.01)). In the FT task compared to the control groups in LH stroke, ΔHbO was increased over the affected SSC in minor IS ($\beta 11.2$ (1.9,20.5)) and major ICH group ($\beta 11.7$ (1.4,22.1)). In the FT task in RH stroke, ΔHbO was increased over the unaffected PMC in minor IS ($\beta 12.1$ (2.3,21.8)), major IS ($\beta 14.9$ (0.3,29.5)), minor ICH ($\beta 25.7$ (10.1,41.2)) and major ICH ($\beta 13.4$ (1.1,25.6)). **Conclusions:** Motor cortex dysconnectivity may be worse over the LH stroke. In RH stroke, there is early compensatory increased neuronal activity over the unaffected PMC. These results suggest differential acute remodelling in RH and LH strokes.