Trends in intracerebral haemorrhage admissions, prior anticoagulant use, acute stroke care, and mortality outcomes 2011-2018: A national Scottish database study.

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BACKGROUND AND AIMS: Over the last decade, there have been significant advances in stroke prevention and care, including the use of the direct oral anticoagulants (DOACs) and the implementation of an acute stroke care bundle. This study aims to describe trends in hospital admissions for first-ever non-traumatic intracerebral haemorrhage (ICH), prior anticoagulation use, acute stroke care, discharge destination and mortality in a national Scottish cohort.

METHODS: A national data linkage study using routinely collected health data in the Scottish Stroke Care Audit, the Prescribing Information System, inpatient and day-case discharges in the Scottish Morbidity Record 01, and mortality data in the National Records of Scotland between January 2011 and December 2018 with follow-up data to 90 days. Multivariable logistic regression models were adjusted for year of admission, sociodemographic factors, comorbidity burden, stroke severity and care bundle.

RESULTS: Between 2011 and 2018, there were 5901 hospital admissions for a first-ever ICH (women 52.2%; mean age 74.26 [±12.70] years). Admissions for ICH rose from 10% (515 cases) of all stroke admissions in 2011 to 11.2% (857 cases) in 2018. Prescriptions for OAC within 90 days before admission doubled from 9.7% to 19.4% of patients. While warfarin prescriptions remained consistent (9.5% to 9.3%; p=0.851), prescriptions for DOACs increased from 1.0% in 2014 to 10.3% in 2018. Acute care also improved during the study period (stroke unit admission [65.4% to 74.6%]; brain scan within 12h [88.2% to 96.6%]; and early swallow screen [80.8% to 93.7%]). Discharge to usual place of residence within 30 days (adjusted Odds Ratio (aOR), 1.00; 95% confidence interval (CI), 0.97 – 1.04) and 90 days (aOR, 1.00 [0.97 – 1.04]) remained consistent between 2011 and 2018, while all-cause mortality within 30 days after stroke increased slightly (aOR, 1.05 [1.01 – 1.08]), but not at 90 days after stroke (aOR, 1.03 [1.00 – 1.06]).

CONCLUSIONS: Although acute care measures improved over time, corrected 30-day, but not 90-day all-cause mortality increased over time. This might reflect better data collection, realistic medicine in frailer patients or worsening of haemorrhage related to anticoagulation and requires further explorations.

Keywords: Intracerebral haemorrhage, anticoagulation, outcomes, database study.