Are UK stroke units getting better at delivering hyperacute interventions for intracerebral haemorrhage? Analysis of national registry data

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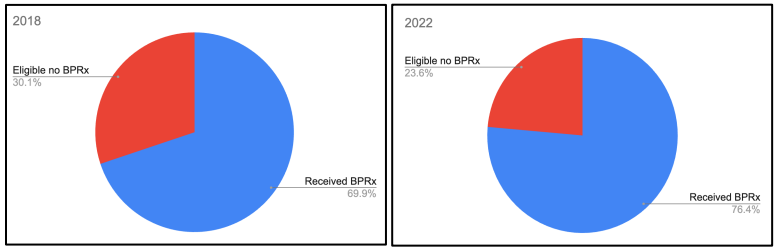
Background:

Rapid BP-lowering for intracerebral haemorrhage (ICH) reduces haematoma growth and improves outcomes, with guidelines recommending BP-lowering to 140mmHg within one hour of hospital arrival[1]. Over the past five years the Sentinel Stroke National Audit Programme (SSNAP) in England, Wales, and Northern Ireland has analysed the quality of hyperacute BP-lowering treatment for ICH.

Methods:

SSNAP has collected data between 2018-2022 for 158 acute stroke teams using an online proforma including validations to ensure accuracy and complete case ascertainment. Conscious (NIHSS LOC 0-2) ICH patients with onset to arrival within six hours and systolic BP (SBP) ≥150mmHg were considered eligible for hyperacute BP-lowering treatment (BPRx).

Figure 1: Eligible ICH patients receiving BPRx



Proportion of eligible patients receiving BP lowering treatment has increased to 76% between 2018-2022

Figure 2: Proportion of eligible ICH patients receiving BPRx within 1hr of arrival

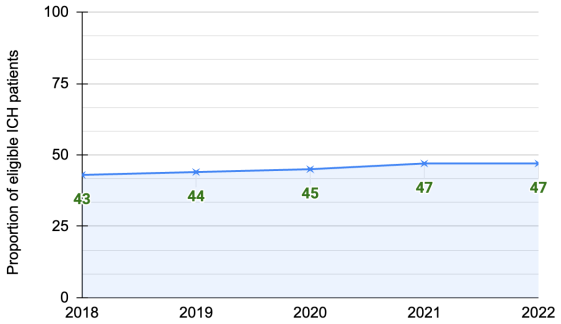
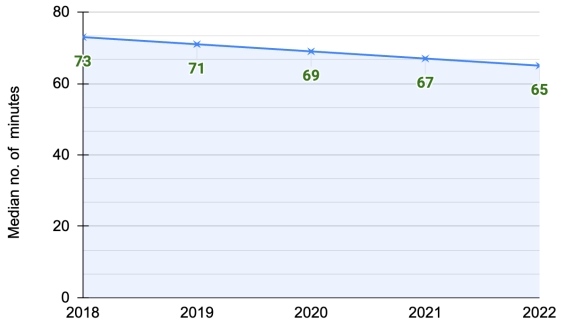


Figure 3: Median time from arrival to BPRx received for eligible ICH patients



Proportion of patients achieving target BP within 1hr of arrival has remained static (5%)

Figure 4: Proportion of ICH patients achieving target sysBP within 1hr of arrival

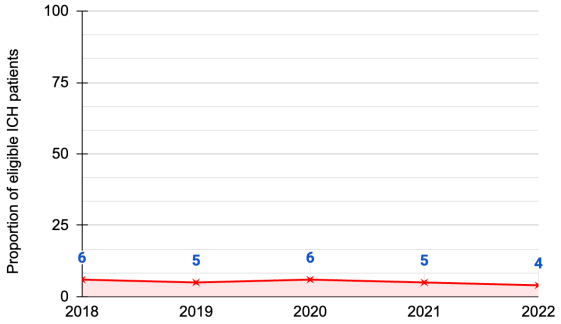
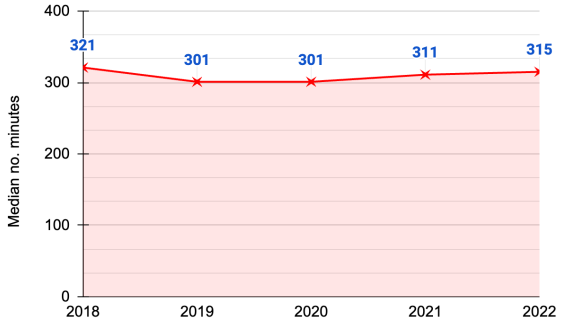


Figure 5: Median time from arrival to target sysBP achieved for eligible ICH patients treated



Results:

Of 48,135 ICH patients admitted over 5 years, 16,293 (34%) were eligible for BPRx. The proportion of eligible patients treated rose from 70 to 76% (P<0.0001) *fig. 1*, with median time to initiating treatment falling from 73 to 65 minutes (P<0.01) *fig. 3*. The proportion of patients receiving BPRx within one hour of arrival rose by 4% (43 to 47%, P<0.01) fig. 2. However, the proportion of patients achieving SBP ≤140mmHg within one hour of arrival remained static (5-6%) *fig. 4*, as did the median number of minutes from arrival to target SBP (approximately five hours) *fig. 5*. The median time from BPRx initiation to SBP ≤140mmHg remained unchanged at around three hours.

Conclusion:

There have been some very small improvements over the last 5 years in the implementation of hyperacute BPRx for ICH in UK hospitals. However, treatment is much slower than recommended in national guidelines, raising concern that the outcome benefits we should expect are not being delivered in real-world practice. Targeted programmes of quality improvement, such as those used in the INTERACT-3 trial[2], should be implemented urgently to achieve a step-change in outcomes for this group of patients.

References:

[1]National Clinical Guideline for Stroke for the UK and Ireland. London: Intercollegiate Stroke Working Party; 2023 May 4. Available at: www.strokeguideline.org.

[2]Ma, L., et al.(2023). The third Intensive Care Bundle with Blood Pressure Reduction in Acute Cerebral Haemorrhage Trial (INTERACT3): an international, stepped wedge cluster randomised controlled trial. doi:https://doi.org/10.1016/s0140-6736(23)00806-1.

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