TREATMENT OF ISCHAEMIC STROKE WITH THROMBECTOMY ALONE AND WITH BRIDGING THERAPY WITH INTRAVENOUS THROMBOLYSIS (tPA) – UK NATIONAL REGISTRY DATA

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Background

We used real-world data from the Sentinel Stroke National Audit Programme (SSNAP), the UK national stroke register (excluding Scotland) to compare the characteristics and early outcomes of patients with acute ischaemic stroke treated with mechanical thrombectomy according to the use of bridging therapy with tPA.

Methods

Patient-level data from 85,122 records in SSNAP were analysed for patients admitted between April 2016 and March 2017. We compared baseline characteristics and early outcomes of patients that had mechanical thrombectomy plus bridging therapy with tPA (n=369) versus mechanical thrombectomy alone (n=211). Mechanical thrombectomy was carried out at 25 centres (23 in England, 1 in Wales, 1 in Northern Ireland).

Results

Patient characteristics were generally similar between the two groups. Differences included a lower prevalence of atrial fibrillation (AF) (15% versus 35%, p<0.001), shorter onset to arrival time (73 vs 155 minutes, p<0.001), and more severe stroke (median NIHSS 18 vs 16, p=0.004) in the bridging therapy group.

Patients receiving bridging therapy had shorter onset to completion times (300 vs 331 minutes, p=0.006) but longer arrival to completion times (207 vs 177 minutes, p=0.006) compared to thrombectomy alone.

There were no differences in reperfusion rates (mTICI) or early outcomes (0-2 NIHSS at 24 hours, 19% with bridging therapy vs 22% with thrombectomy alone, p=0.443) between the two groups.

Demographic	Bridging therapy (n=369)	No bridging therapy (n=211)	p value
Median age (years)	67 (53-76)	69 (58-78)	0.059
Mean age (years)	64.4 (15.3)	67.1 (14.8)	0.039
Gender (male)	206 (56%)	101 (48%)	0.063
Hypertension	169 (46%)	85 (40%)	0.161
Diabetes mellitus	53 (14%)	33 (16%)	0.513
Atrial fibrillation	57 (15%)	73 (35%)	<0.001
NIHSS arrival, median (IQR)	18 (13-22)*	16 (10-20)†	0.004
Onset to arrival time (if onset is known) (min)	73 (56-110)‡	155 (76-261)‖	<0.001

*n=357 †n=202 ‡n=351 ‖n=157

Treatment details	N	Bridging therapy	N	No bridging therapy	p value
Onset to completion (min)	333	300 (239-359)	167	331 (241-418)	0.006
Onset to arterial puncture (min)	361	230 (180-290)	181	264 (185-360)	0.002
Arrival to completion (min)	340	207 (148-268)	197	177 (121-252)	0.016
Arrival to arterial puncture (min)	369	137 (88-195)	211	111 (65-193)	0.009
Arterial puncture to deployment (min)	340	20 (10-33)	197	20 (12-31)	0.970
Arterial puncture to completion (min)	340	56.5 (35-81)	197	52 (30-80)	0.321

Outcomes	Bridging therapy (n=300)	No bridging therapy (n=161)	p value
NIHSS 0-2 at 24h	57 (19%)	36 (22%)	0.688
Mean (SD) NIHSS at 24h	10.4 (8.8)	9.9 (8.6)	0.710
Mean (SD) change in NIHSS from baseline to 24h	-6.7 (7.7)	-5.7 (8.0)	1.000
mTICI score 2b/3	270 (79%)*	156 (79%)†	0.002

*n=340 †n=197

Discussion

There are some differences in casemix between patients receiving bridging therapy prior to thrombectomy, and those having thrombectomy alone. Arrival to completion times are longer in the group receiving bridging therapy, presumably reflecting extra time spent on delivering tPA first. Despite longer arrival to arterial puncture time in the bridging group, onset to completion times were shorter due to lower onset to arrival times. These pre-intervention times could be largely driven by differences in patient characteristics/circumstances. Reperfusion rates and early neurological outcomes were similar, which supports ongoing trials to understand the additional efficacy of bridging therapy in patients receiving thrombectomy.