Substantially elevated thromboembolic and bleeding risks in patients with AMI following acute/subacute stroke events

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Introduction: AMI infrequently but concomitantly occurs after stroke events. Current guideline recommends primary PCI with DAPT in the setting of AMI. However, this approach is not necessarily applicable in AMI subjects following acute/subacute stroke events due to its bleeding risk. Clinical management and outcomes of these AMI subjects following remains uncertain.

Purpose: To characterize management and clinical outcomes in patients with AMI following acute/subacute stroke events (=post-stroke AMI).

Methods: The current study retrospectively analyzed 2041 AMI patients hospitalized at our institute from 2007 to 2018. Post-stroke AMI was defined as its occurrence within 14 days after ischemic/hemorrhagic stroke. The use of reperfusion and anti-thrombotic therapies, and the occurrence of major adverse cardiovascular events (=CV death, non-fatal MI and non-fatal stroke) and major bleeding events (BARC type 3 or 5) were compared in post-stroke and non-post-stroke AMI patients.

Results: Post-stroke AMI was identified in 1.1% of entire subjects (=23/2041). Of these, 65% of them (=15/23) had AMI within 3 days from the onset of stoke event. Over 60% of them was due to cardioembolic stroke, followed by hemorrhagic (9%), atherothrombotic ones (8%) and other causes (22%). Post-stroke AMI patients were more likely to exhibit Af (p=0.02) and a history of hemodialysis (p=0.009), and have a lower BMI (p=0.04) and hemoglobin level (p=0.02). They were less likely to receive emergent coronary angiography, and primary PCI was conducted in only 65% of post-stroke AMI patients (Table). Furthermore, they more frequently received thrombectomy (p=0.04) alone rather than stent implantation (p=0.002) (Table). With regard to anti-thrombotic therapy, the proportion of DAPT use was significantly lower in post-stroke AMI subjects (52 vs. 89%, p=0.0001), and 17% of them did not receive any anti-thrombotic agents. Of note, only 48% (p=0.04) and 43% (p=0.0001) of post-stroke AMI patients were treated with other established medical therapies including β-blocker and statin, respectively. During the observational period (median = 2.9 years), post-stroke AMI was associated with a greater likelihood experiencing major adverse cardiovascular events (log-rank p<0.001, Figure), CV death (log-rank p<0.0001) and stroke events (log-rank p<0.0001). Furthermore, the frequency of their major bleeding events was substantially elevated (log-rank p<0.001, Figure).

Conclusions: In our real-world data, the adoption of guideline-recommended reperfusion and anti-thrombotic therapies were considerably low in AMI subjects following acute/subacute stroke events. Given their elevated risk of cardiovascular and bleeding events, it is required to establish better therapeutic management for mitigating their thrombotic/bleeding risks.

	Post-stroke (n=23)	Non-post-stroke (n=2018)	p-value
Reperfusion Therapy			
Emergent coronary angiography, n (%)	20 (87)	1957 (97)	0.04
Primary PCI, n (%)	15 (65)	1695 (84)	0.02
Stent implantation, n (%)	11 (48)	1561 (77)	0.0021
Thrombectomy alone, n (%)	2 (8.7)	30 (1.5)	0.049
Balloon angioplasty alone, n (%)	2 (8.7)	64 (3.2)	0.17
Anti-thrombotic Management			
DAPT, n (%)	12 (52)	1803 (89)	<0.0001
OAC alone, n (%)	1 (4.4)	6 (0.3)	0.07
No use of any anti-thrombotic agents, n (%)	4 (17)	28 (1.4)	0.0004
Other Established Medication Use			
β-blocker, n (%)	11 (48)	1386 (69)	0.04
ACEI/ARB, n (%)	15 (65)	1577 (78)	0.13
Statin, n (%)	10 (43)	1620 (80)	0.0001

Table 1

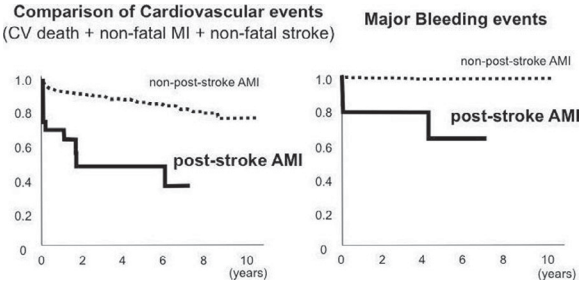

Figure 1

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