Anti-platelet Therapy and Anticoagulants After Stroke due to Intracerebral Haemorrhage. A Single Centre Review

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Introduction:

Antiplatelet therapy or anti-coagulants are commonly used as primary or secondary prevention for arterial occlusive diseases or venous thromboembolism. The risks of intracranial haemorrhage has to be balanced against its benefits, particularly in patients who survived from previous episodes of intracerebral haemorrhage. The recently published RESTART trial (Lancet 2019; 393: 2613–23) suggested that starting antiplatelet therapy after ICH halves the occurrence of recurrent spontaneous intracerebral haemorrhage (4% vs 9%, p= 0·057).

Methods:

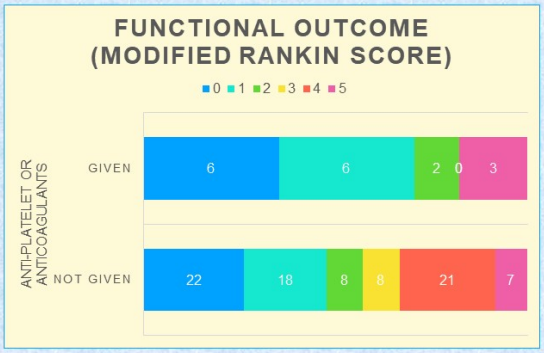
This was a five-year retrospective review of patients with intracerebral haemorrhage at a single Neurosurgical Unit. We included all adults patients (>= 18 years old) who underwent neurosurgical operation for intracerebral haemorrhage and survived to discharge from 2014 - 2018. Patient data including patient age, gender, antiplatelet or anticoagulant use and neurological outcomes were collected from ePR. Primary outcome was recurrent spontaneous ICH, secondary outcomes include other major cerebrovascular occlusive events i.e. ischaemic stroke; risk of carotid, coronary or peripheral revascularization; and major venous events including DVT and PE. We also collected data on patient functional outcome as measured by the Modified Rankin Scale at follow-up. The above were statistically analyzed for significance.

Results:

112 patients were identified from the patient database. 20 (17.9%) patients were given or restarted on antiplatelet therapy or anticoagulant after their first episode of intracerebral haemorrhage. 6 patients (5.4%) suffered from a second episode of intracerebral haemorrhage.

	Anti-platelet therapy or Anticoagulants		*P*-value
	Given (n=20)	**Not given** (n=92)	
Gender - Male - Female	13 (65.0%) 7 (35.0%)	58 (63.0%) 34 (37.0%)	/
Age	56.1 (29-83)	53.6 (23-84)	/
Co-morbid - Hypertension - Diabetes	15 (75%) 4 (26.7%)	64 (58.7%) 14 (15.2%)	0.598 0.629
Recurrent ICH	2 (10.0%)	4 (4.3%)	0.309
Functional Outcome [MRS]	1.4 +/- 1.8	2.1 +/- 1.7	0.218
Venous Occlusive Events	1 (5%)	0 (0%)	/
Arterial Occlusive Events	4 (20.0%)	2 (2.2%)	**0.01**

There is no statistically significant difference in the baseline demographics in patients given vs not given antiplatelet or anticoagulants even tho hypertension and diabetes are less prevalent in the latter group. There were significantly more patients developing arterial occlusive events after given antiplatelet or anticoagulants after undergoing operation for intracerebral haemorrhage (20.0% vs 2.2% p=0.01).



Modified Rankin Scale
0: No symptoms
1: No significant disability; able to carry out all usual activities despite some symptoms
2: Slight disability; able to look after own affairs without assistance but unable to carry out all previous activities
3: Moderate disability, requires some help but able to walk unassisted
4: Moderately severe disability, unable to attend own bodily need without assistance and unable to walk unassisted
5: Severe disability requires constant nursing care and attention, bedridden, incontinent
6: Death

Patients who were treated with anti-platelets or anti-coagulants had lower mean Modified Rankin Score (1.4 +/- 1.8 vs 2.1 +/- 1.7 p=0.309). More of them are able to return to full pre-morbid activities ([MRS <=2]) (70.1% vs 47.6% p=0.113).

	Antiplatelet (n=14)	**Anticoagulants** (n=7)
Gender - Male - Female	9 (64.3%) 5 (35.7%)	4 (57.1%) 3 (42.9%)
Age	53.3 (37-83)	61.3 (29-75)
Recurrent ICH	1 (7.1%)	2 (28.6%)
Functional Outcome [MRS]	1.92	0.50
Venous Occlusive Events	0 (0%)	1 (16.7%)
Arterial Occlusive Events	4 (30.8%)**	0 (0%)

A subgroup analysis is performed. All arterial occlusive events (2 ischaemic strokes, 1 ischaemic heart disease requiring PCI and 1 carotid stenosis requiring stenting) occurred in patients who received anti-platelet therapy and all venous occlusive events (1 deep vein thrombosis) occurred in patients who received anticoagulants. No patients on anti-platelet therapy developed recurrent intracerebral haemorrhage. There was one patient who was on both anti-platelet and anticoagulants.

Discussion:

In our study, antiplatelet/anticoagulant therapy is significantly associated with arterial occlusive events. The study is limited by its retrospective nature. It is likely that patients given antiplatelet therapy (as secondary prevention) after ICH are at inherently high risk of arterial occlusive events. Nonetheless, there is no significant association between recurrent ICH and anti-platelet or anti-coagulant therapy; as demonstrated by the RESTART trial. Overall recurrent ICH rate is not high (5%). The study included patients who had undergone operation for ICH and they represented the younger and fitter patients amongst the patients who suffered from ICH.

Conclusion:

There is no significant association between antiplatelet or anticoagulant therapy and recurrent intracerebral haemorrhage, which concurred with previous study on this group of patients. Antiplatelet or anti-coagulant therapy did not reduce the risk of recurrent intracerebral haemorrhage.

References:
1.) RESTART Collaboration. Effects of Antiplatelet Therapy After Stroke due to Intracerebral Haemorrhage (RESTART): A Randomised, Open-Label Trial. (2019). Lancet , 393(10191), 2613–2623. doi: https://doi.org/10.1016/S0140-6736(19)30840-2
2.) Chong, B.-H., Chan, K.-H., Pong, V., Lau, K.-K., Chan, Y.-H., Zuo, M.-L., … Siu, C.-W. (2012). Use of aspirin in Chinese after recovery from primary intracranial haemorrhage. Thrombosis and Haemostasis, 107(02), 241–247. doi: 10.1160/th11-06-0439