MICROBLEEDS IN ISCHEMIC VS. HEMORRHAGIC STROKES ON NOVEL ORAL ANTICOAGULANTS

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Background and aim

There is an ongoing debate about whether the benefits of anticoagulation (which itself increases the risk of ICH) hold true for patients with cerebral small vessel disease including cerebral microbleeds (CMBs) and an indication for prevention of thromboembolism.

We aimed to identify differences in clinical characteristics and severity of cerebral small vessel disease (CSVD) including cerebral microbleeds (CMBs), between patients suffering ischemic stroke (IS) or intracerebral hemorrhage (ICH) while taking novel (non-vitamin K antagonists) oral anticoagulants (NOACs).

Methods

Adult patients with Ischemic Stroke (IS) or Intracerebral Hemorrhage (ICH) while taking NOACs were enrolled in a prospective multicenter registry (RASUNOA) (Fig). Imaging was performed as part of local routine. MRI scans obtained within 7 days after index stroke were analysed. CMBs were rated in T2*/SWI sequences using the Microbleed Anatomical Rating Scale form. Rating was performed independently by 2 experienced raters.

Results

No differences in demographics variables and cardiovascular comorbidity was found between IS and ICH. More patients with at least 1 CMB were found in the ICH group (79% vs. 37%). Patients with NOAC-ICH had more CMBs than IS patients (median 5 [1–24] vs. 0 [0–1]). After adjusting for white matter lesions, the odds of ICH were higher in the CMB group (OR 5.6 [1.6–19.1]). Mixed deep and lobar locations of CMBs were frequent in the ICH subgroup.

Conclusion

Patients with NOAC-ICH have similar clinical characteristics but a higher prevalent burden of small-vessel disease compared to NOAC-IS. Longitudinal observational studies are needed to further clarify the benefit-risk ratio of oral anticoagulation in patients with multiple CMBs.

Publication

Full results have meanwhile been published in Acta Neurol Scand. 2018 Aug;138(2):163–9.

Variables	IS (N = 97)	ICH (N = 19)	p Value
CMB positive (%)	36 (37)	15 (79)	<0.001
CMB count (median)	0 (0–1)	5 (1–24)	<0.001
CMB category			<0.001
CMB 1	12 (13)	1 (5)	
CMB 2-4	10 (10)	3 (16)	
CMB ≥ 5	13 (14)	11 (58)	
CMB distribution			0.015
Strictly Lobar	15 (42)	2 (13)	
Strictly Deep	5 (14)	0 (0)	
Strictly Infratentorial	2 (6)	0 (0)	
Mixed	14 (39)	13 (87)	
ARWMC, total score	6 (4–10)	10 (9–16)	0.001
Fazekas	3 (2–4)	4 (3–6)	0.006

Table: Radiological Findings
ARMWC= Age Related White Matter Changes

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