Cortical superficial siderosis in patients with cardioembolic stroke and long-term oral anticoagulation: Frequency, associated variables and risk of intracranial hemorrhage during follow-up

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Background and Aims

Cortical superficial siderosis (cSS) is associated with a high risk of intracerebral hemorrhage (ICH) and treatment with oral anticoagulants (OA) may enhance this risk. We investigated the frequency, associated variables and risk of subsequent ICH in patients with cardioembolic stroke and cSS. (Fig. 1)

Method

Patients were participants of a multicenter observational study (HERO study, NCT02238470). Participants were older than 65y, had ischemic stroke (IS) attributed to cardiac embolism, and were new users of OA. A baseline magnetic resonance was performed within 1 month after the index IS. Two neuroradiologists, blinded to clinical data, evaluated the presence and extension of cSS (focal or disseminated) on T2*-GRE and/or SWI sequences. We collected vascular risk factors, CHA2DS2-VASc and HASBLED scores, prior treatment with antiplatelets, type of OA, presence of microbleeds and white matter lesions, and ICH during follow-up. Statistics: Bivariate analyses, logistic regression analysis, Kaplan-Meier survival curves.

Results

We studied 870 patients (age 77.6±6.6 y, 48% men). cSS was detected in 27 (3.1%, 24 focal/3 disseminated) patients (Fig. 2). Presence of cSS was associated with previous ICH (OR 14.7, 95% CI 14.5-14.89, p=0.002) and advanced liver disease (OR 6.6, 95% CI 6.6-6.7, p=0.017) (Table 1). After a mean follow-up of 23±6.7 months, 18 (2%) patients suffered an ICH. Only 1 (3.7%) patient with cSS suffered an ICH. Presence of cSS was not associated to ICH (log rank test, p=0.52) (Fig. 3).

Table 1. cSS associated variables.

	OR	95% CI	p
Previous ICH	14.7	14.5-14.89	0.002
Advanced liver disease	6.6	6.6-6.7	0.017

Figure 2. Frequency of cSS in patients with cardioembolic ischemic stroke.

Figure 3. Kaplan-Meier survival curves.

Conclusion

In patients with cardioembolic stroke, cSS is an uncommon finding (3.1%) and is associated with previous ICH and liver disease. cSS is not associated with an increased risk of ICH in patient receiving OA.