

Searching for Silent Strokes in Magnetic Resonance Imaging of Patients with Restless Legs Syndrome and Controls

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Background: There is increasing indirect (epidemiological, clinical and neurophysiological) evidence that patients with restless legs syndrome (RLS) might be at increased risk of hypertension, heart disease, and stroke. For this reason, the aim of this study was to evaluate whether RLS is an independent risk factor for cerebral microvascular ischemic disease (MVD) when other potential risk factors for stroke are controlled.

Methods: Twenty-eight patients with RLS and 25 age- and sex-matched normal control subjects were included. All patients had a normal neurological exam and no previous history of stroke; both patients and controls had no risk factors for stroke, including hypertension, hyperlipidemia, coronary artery disease, diabetes and excessive tobacco use. A neurology stroke specialist (MM) blinded to the experiment scored the volume of cerebral MVD (Digital Image Analysis, Image J program, version 1.37).

Results: Table 1 shows the results of our analysis.

	RLS (n=28)		Controls (n=25)		ANCOVA*		Effect size
	mean	S.D.	mean	S.D.	F	p<	<i>d</i>
Age, years	59.28	12.339	59.13	12.390			
Total MVD area, cm ²	3.37	8.416	1.16	2.047	1.826	NS	-0.361
Total MVD volume, cm ³	1.69	4.208	0.58	1.024	1.826	NS	-0.362
Number of MRI slices with MVD	5.64	3.644	4.40	2.466	3.008	0.089	-0.399

*Age was used as a covariate. MVD = microvascular ischemic disease.

All parameters (total MVD area and volume, and number of MRI slices with MVD) tended to be higher in RLS patients; however, they approached but did not reach statistical significance. In addition, we plotted each

variable against age and, as one might expect, a positive correlation was found between our measures and age in both groups of subjects. This type of plot also showed that differences between the two groups might be more evident after the age of 55-60 years. This might indicate that years of repeated transient heart rate/blood pressure rises accompanying periodic leg movements during sleep (PLMS) are needed in order to develop a cerebral MVD involvement exceeding the amount expected for age.

Conclusion: The results of this exploratory study are encouraging because they seem to confirm the initial hypothesis and deserve to be expanded to a larger group of patients and controls that might increase the power of the analysis, allowing to reach full statistical significance.



