Title

WHITE MATTER LESIONS ARE NOT ASSOCIATED WITH THE PRESENCE OF RIGHT-TO-LEFT SHUNT

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Congenital Cardiology Solutions

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Sunday, March 10, 2013, 3:45 p.m.-4:30 p.m.

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Background: White matter lesions (WMLs) are prevalent in people who have migraine with or without a right-to-left shunt (RLS) across a patent foramen ovale (PFO). WMLs may also result from paradoxical emboli due to RLS in non-migraineurs. We studied if there is any association between WMLs and RLS by comparing the frequency of WMLs in subjects with a known RLS versus a general population.

Method: 464 patients age 20-80 with a PFO had a brain magnetic resonance imaging (MRI) study. The images were interpreted by a radiologist for the presence of WMLs. Patients were divided into two groups based on the presence or absence of migraine. To determine the frequency of WMLs in age matched normal subjects, brain MRI results were reviewed from 2,728 patients, and those with conditions associated with WMLs such as cerebrovascular emergencies, migraine headache, brain tumors, vasculitis and multiple sclerosis were excluded.

Results: In all age groups of non-migraineurs with a RLS, WMLs were not more prevalent compared to age matched controls. Migraineurs with RLS had an increased prevalence of WMLs in age groups 30-39 (21.05% vs. 4.4% p=0.01) and 50-59 (49.15% vs. 21.2% p=0.0008).

The percent frequency of WMLs on MRI per decade:

Age in years	20-29	30-39	40-49	50-59	60-69	70-79
RLS w/o migraine % (N) with WMLs	10% (1)	4.7% (1)	13.7% (7)	23.7%(14)	35.7%(15)	30.43%(7)
Control % (N) with WMLs	7.4% (5)	4.4% (2)	22.5%(16)	21.2%(18)	46.7%(31)	69.7%(69)
p-values	0.57	1	0.32	0.87	0.37	0.001

Conclusions: In people with RLS due to a PFO who do not have associated migraine headache or aura, there is no increase in the frequency of WMLs on brain MRI compared with an age matched control population. Migraineurs with RLS have a higher frequency of WMLs than age matched controls.