



## Patent foramen ovale: red flag in radiologically isolated syndrome

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### Objectives

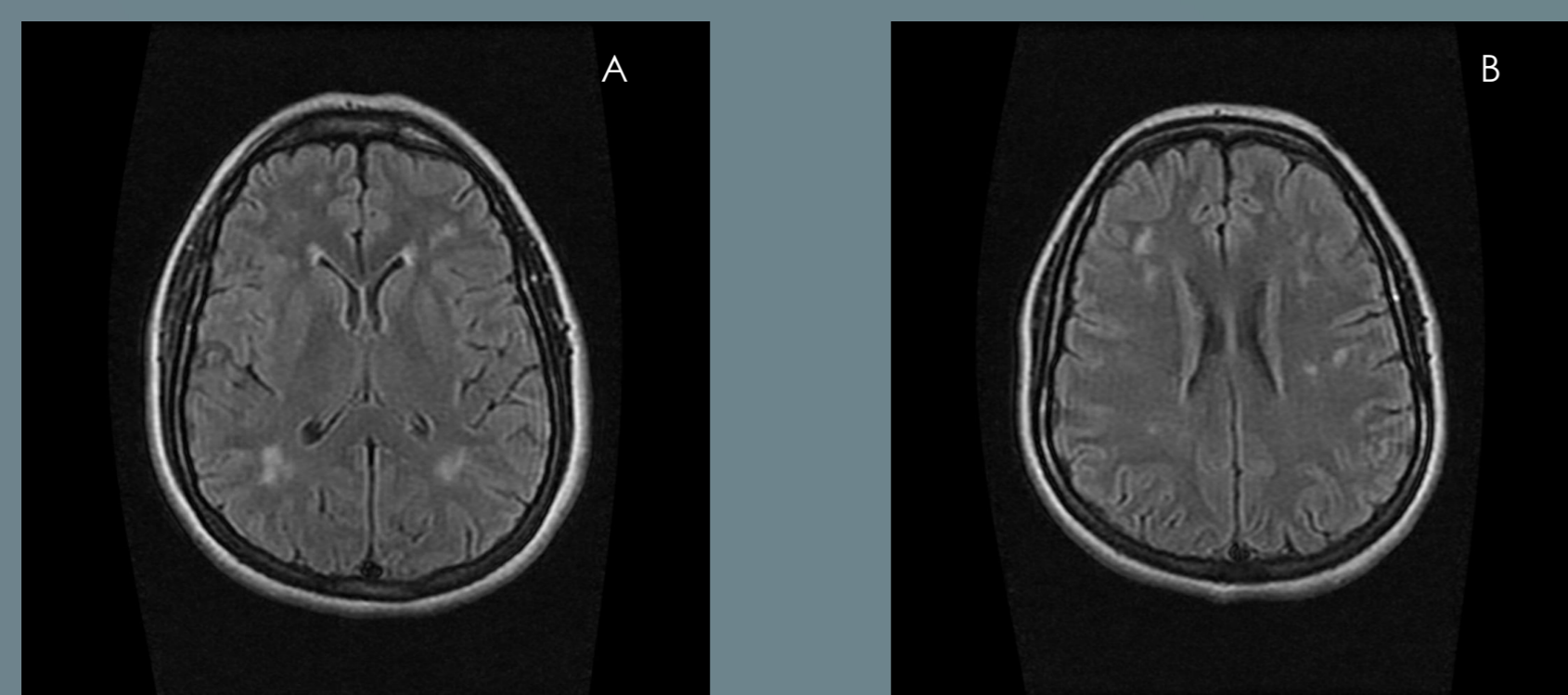
to deepen the role of patent foramen ovale (PFO) in patients with migraine with aura and white matter lesions that follow the criteria of dissemination in space of Swanton for possible demyelinating disease.

### Materials

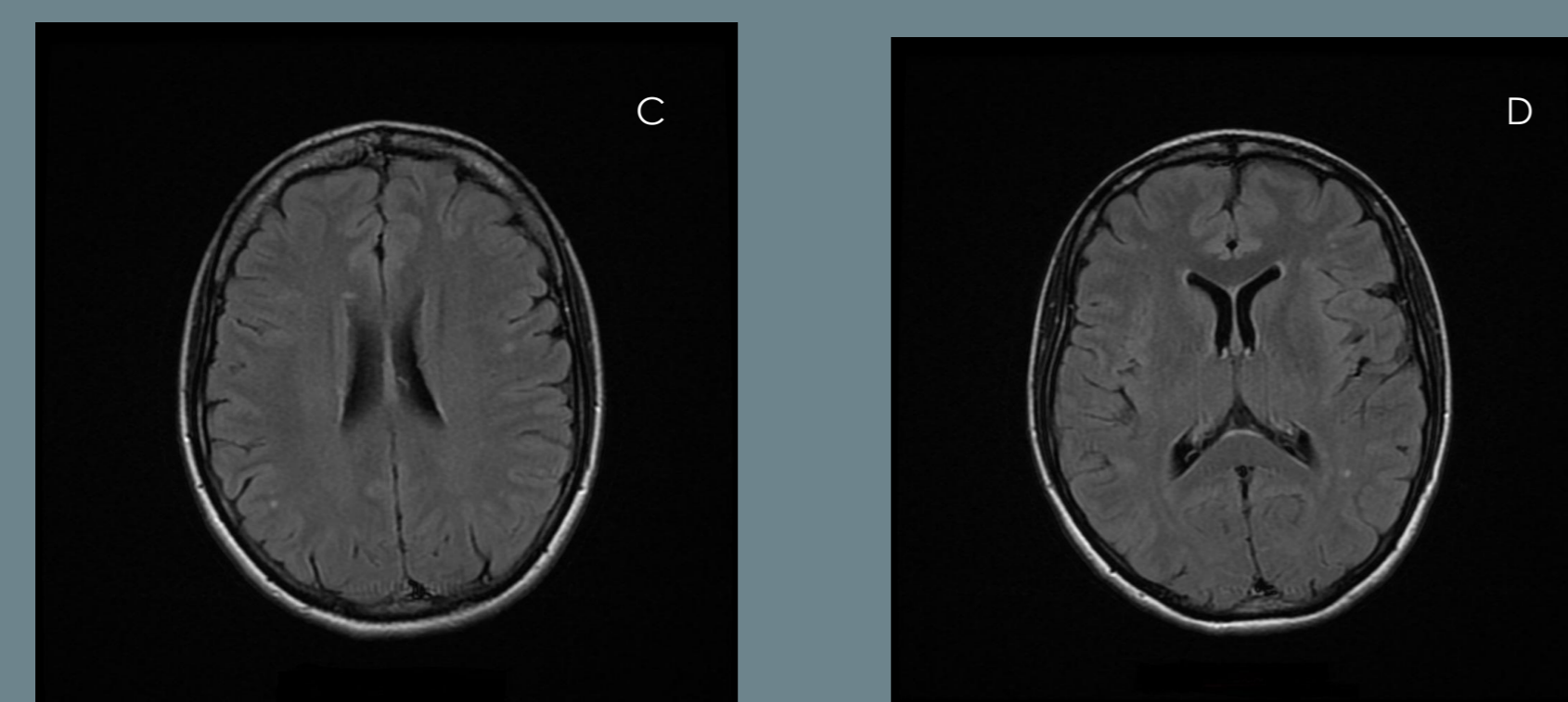
30 patients, 23 females and 7 males, who practiced an MRI for migraine with and sine aura and discovered the presence of incidental T2 white matter hyperintensities (WMHs) suggestive of demyelinating disease that in 5 patient meeting Barkhof Criteria. For this reason, the patients have practiced further diagnostics with lumbar puncture, autoimmunity panel, thrombophilic evaluation, cardiological evaluation to detect the presence of patent foramen ovale (PFO) and instrumental and clinical follow-up over three years.

### Results

5 patient meeting Barkhof Criteria have oligoclonal bands (OB) in cerebral spinal fluid (CSF) and received diagnosis of radiologically isolated syndrome (RIS); 16 of 30 global patients (53%) and 62,5% of patient with negative lumbar puncture have PFO at cardiological evaluation. We observed that all the patients with PFO have migraines with visual aura and almost all of them have the negativity of lumbar puncture for oligoclonal bands (15/16). The instrumental follow up showed a stationary lesion load, with the absence of infratentorial or spinal cord lesions in patients with PFO. Moreover, the MRI showed no enhancement at any times.



In Fig. A e B T2 flair scan of patient with migraine and PFO and absence of OB in CSF



In Fig. C e D T2 flair scan of patient with migraine without PFO and absence of OB in CSF

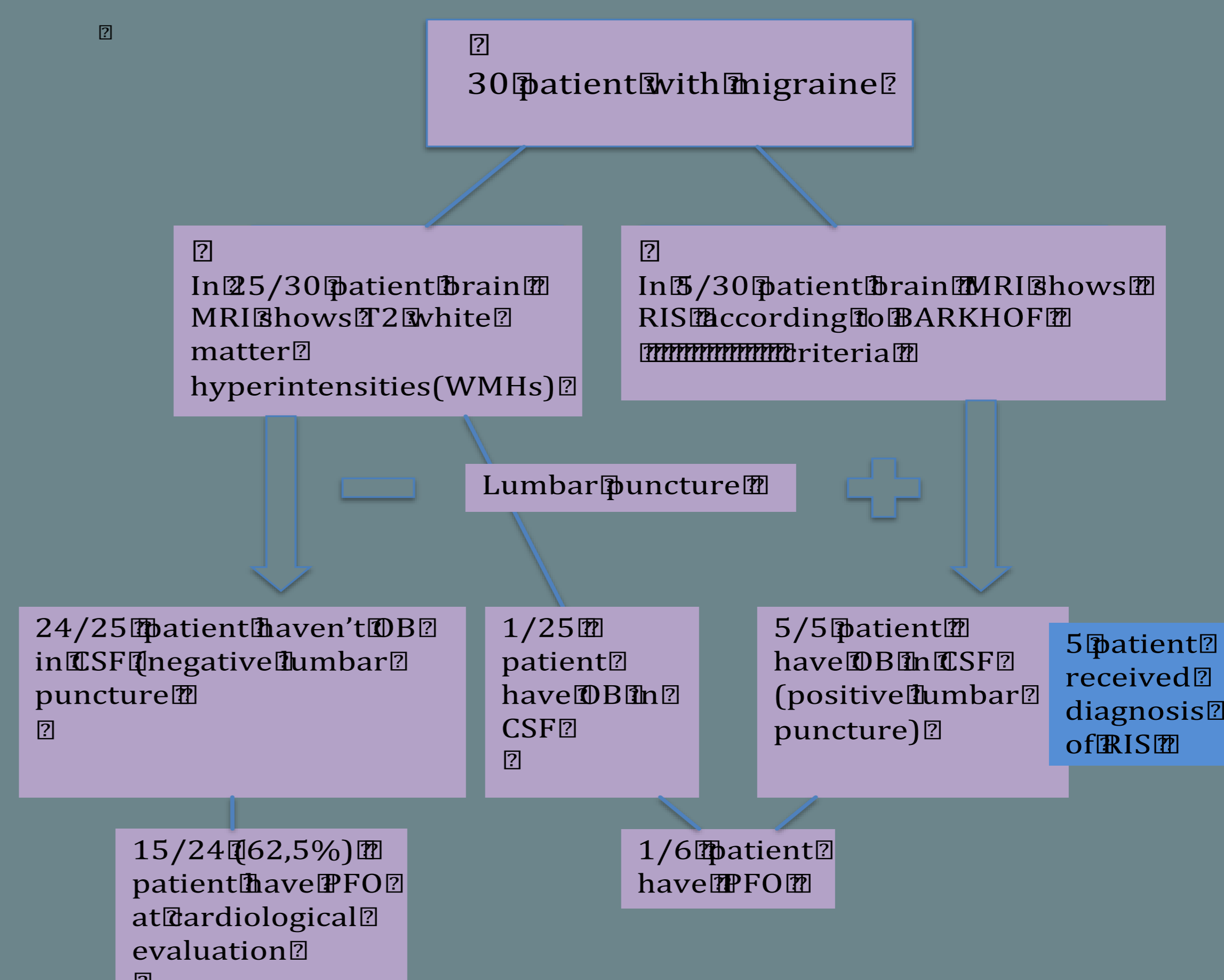


Fig.1: flow-chart of patient involving in study

### Discussion and conclusions

Migraine with aura is often one of the main symptoms leading the patient to perform an MRI and discovering, in most of the cases, non-specific (or difficult to interpret) white matter lesions. The hypothesis that migraine could determine the presence of white matter lesions in the brain is not precisely defined in the literature but reported as predominantly frontal, iuxtacortical, paraventricular. Therefore it may be similar to demyelinating disease raising reasonable doubts during the differential diagnosis of radiologically isolated syndrome. In our opinion it is very important to perform lumbar puncture to search inflammation in the CSF and the predictability of Barkhof criteria for the diagnosis of radiologically isolated syndrome. In conclusion, the PFO could boost and affect the presence of these lesions and must be considered in the diagnosis of patients with migraine with visual aura in absence of infratentorial or spinal cord lesions and it must be taken into account in the differential diagnosis. Our is very small sample and other study could be perform to validate and confirm these date.

#### Bibliography

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