

# The quest for the identification of pathogenic patent foramen ovale

La búsqueda de la identificación del foramen oval permeable patológico

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**P**atent foramen ovale (PFO) causing right-to-left shunt (RLS) has been demonstrated to be an important condition present in patients with ischemic strokes without other underlying predisposing factors. It constitutes 95% of RLS, being the rest pulmonary arteriovenous fistulae and other defects of the auricular septum<sup>1</sup>. In healthy subjects, PFO is found in 24.2% of autopsies, 23.7% of contrast-enhanced transesophageal echocardiogram (cTEE), 31.3% of contrast-enhanced transcranial Doppler (cTCD), and 14.7% of contrast-enhanced transthoracic echocardiogram (cTTE)<sup>1</sup>. These percentages are higher in cryptogenic strokes, especially in young subjects<sup>1,2</sup>.

Numerous reports have established an important role of size and other anatomical characteristics of the PFO that may increase the likelihood of causing strokes<sup>3</sup>.

PFO-associated stroke is today a well-recognized entity with specific diagnostic and therapeutic approaches<sup>4,5,6,7,8</sup>.

However, the high prevalence of PFO in the general population highlights the need to better define the characteristics of the malformation that exacerbates the risk and makes the causal association more likely.

In the current issue of *Archivos de Neuro-Psiquiatria*, Scavasine VC et al. performed an elegant study of stroke patients with RLS using cTCD with Valsalva maneuver<sup>9</sup>. They correctly assumed that most of these shunts are caused by PFO<sup>1</sup>. The population was divided into two groups: undetermined embolic strokes and non-cardioembolic strokes. This strategy was used to assess the characteristics of PFOs in cases with a clear potential association with stroke and to compare them with PFOs unlikely to be related to the stroke. The authors found that more subjects in the embolic group had more than 10 microembolic signals, and 78% of them had RLS at rest compared with 58% in the non-cardioembolic group. Both these findings indirectly suggest the presence of a larger PFO size in patients with embolic strokes compared with those in whom PFO was a “casual bystander” phenomenon.

These findings add to the current body of evidence indicating a potential association between the PFO size and the risk of paradoxical embolic stroke<sup>3</sup>.

Currently, there is a consensus in the management of PFO-associated strokes in young subjects with recent stroke and no other predisposing factors<sup>7,8</sup>. However, a large number of suspicious cases do not fit these criteria. Older subjects, those with transient ischemic attacks, coexistence of vascular risk factors, and/or other potential causes of stroke constitute a large proportion of patients without clear evidences to decide a proper approach<sup>8</sup>.

The study by Scavasine et al.<sup>9</sup> may help, using a simple and noninvasive methodology, to start filling this important gap in our knowledge.

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