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Cardiac source of embolism diagnosed by transeophageal echocardiography - what to expect in nowadays clinical practice

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Background: Transeophageal echocardiography (TEE) is an essential tool to diagnose cardiac source of embolism (CSE) and to define treatment approach. Purpose: To review the identified CSE in 25 years experience in TEE at a tertiary centre. Methods: Retrospective study of consecutive patients (pts) who underwent TEE to search for CSE, from 1994 to 2019. Results: 2936 pts (55% males, mean age 53 ± 13 years). Ischemic cerebral event (96%) was the main location of embolism. TEE identified potential CSE in 41.5% and 7% had more than one diagnostic. The most frequent CSE were patent foramen ovale (PFO) (16.3%) and atrial septal aneurysm (ASA), among these 65% had concomitant PFO or atrial septal defect (ASD) (14.1%). Aortic plaques ≥ 4 mm were noted in 9.6%, followed by valve disease or prosthesis (5.4%), intracavitary thrombi (3.9%), vegetations (1.6%), ASD (1.5%), dilated cardiomyopathy (1.4%) and tumors (0.7%). In the last 15 years, the diagnostic effectiveness increased (35.6% vs 45.95%) and there was a shift in etiologies with an increased in the diagnose of PFO/ASD (26.8% vs 38.5%) and valve disease or prosthesis became less frequent (29.9% vs 3.7%). Overall, in elderly pts there was a preponderance of atherosclerotic plaques in the aorta, contrasting with younger pts who presented a predominance of PFO (Table1). The prevalence of spontaneous echo contrast increased with age. Pts with ischemic cerebral event were younger, mostly male and PFO was the main source of embolism (17%), while in pts with peripheral embolism the most frequent etiologies were intracavitary thrombi (16%) and aortic plaques ≥ 4 mm (14%). Conclusion: The main cause to perform a TEE to search for CSE was cerebral embolism, with a diagnostic effectiveness overall of 41.5%, that increased in the last 15years.

Table 1

Characteristics	<50 years (n = 1191)	50-75 years (n = 1569)	≥ 75 years (n = 171)
Male (%)	601 (50%)	931 (59%)	80 (47%)
Atrial septal defect (%)	23 (2%)	20 (1%)	0
Patent foramen ovale (%)	239 (20%)	226 (14%)	12 (7%)
Atrial septal aneurysm (%)	70 (6%)	130 (8%)	13 (8%)
Vegetations (%)	8 (0.7%)	29 (2%)	9 (5%)
Tumors (%)	10 (0.8%)	8 (0.5%)	4 (2%)
Intracavitary thrombi (%)	28 (2%)	74 (5%)	14 (8%)
Aortic plaque ≥ 4 mm (%)	31 (3%)	203 (13%)	48 (28%)
Valve disease or prosthesis (%)	54 (4.5%)	109 (6%)	11 (6%)
Spontaneous echo contrast (%)	36 (3%)	155 (10%)	32 (19%)

Distribution of cardiac source embolism by age