

To Determine The Frequency Of Left Atrial Enlargement In Different Subtypes Of Ischemic Stroke Based On Toast Classification



Dr Dinesh Chaudhari, Dr P N Renjen, Dr Rahul Saini,

Department of Neurosciences, Indraprastha Apollo Hospital- New Delhi, India

Background and Aims:

The role and basic characteristic of left atrial enlargement in acute cerebral infarction patient is not sufficiently described in literature, especially the relation between stroke subtype and left atrial enlargement. Hence this study was undertaken to look for the frequency of left atrial enlargement in acute stroke subtypes.

LAE and Stroke –

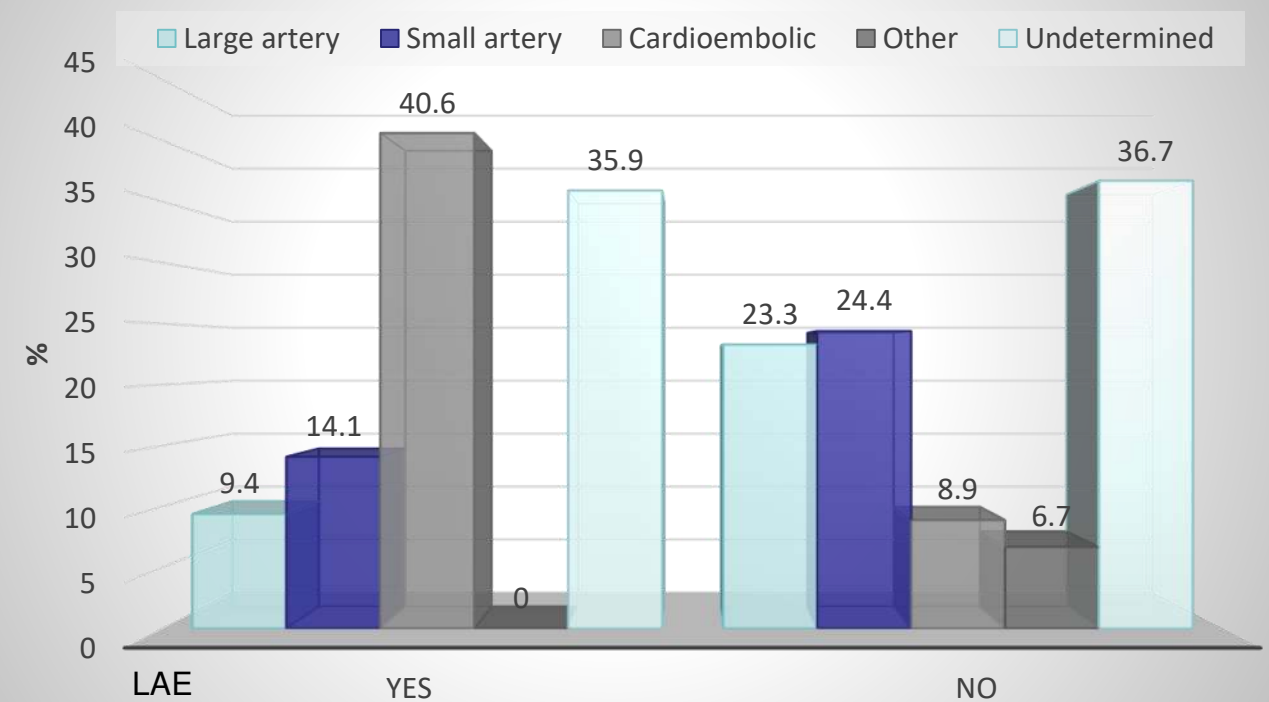
- The relationship between LA enlargement and stroke is complex. Rhythm disturbance that characterize atrial fibrillation is also associated with other atrial derangement such as endothelial dysfunction, fibrosis, impaired myocyte function and chamber dilation.
- These derangements can play an independent role in formation of thrombus and its embolization and the dysrhythmia that define atrial fibrillation is not always necessary for left atrial thrombus formation and embolization to occur.
- In the light of fact that recurrent strokes are more likely among patients with cardioembolic stroke than among patients with stroke of other cause, role of left atrial dilatation as risk factor for ischemic stroke become more important.

Methods:

- 119 patients with acute ischemic stroke admitted during the study period (June 2016 to March 18) were included. Patient's detailed history and thorough physical examination was performed.
- Routine blood tests, 12 lead ECG, Trans Thoracic Echocardiography were performed within 24 hours of admission.
- Using clinical data, radiological images and investigation results, stroke subtype of each patient was determined based TOAST criteria.
- P wave morphology in lead V1 of ECG was evaluated in each patient to look for left atrial enlargement and PTFV1 > 4,000 microvolt ms was considered to be left atrial enlargement by ECG voltage criteria.

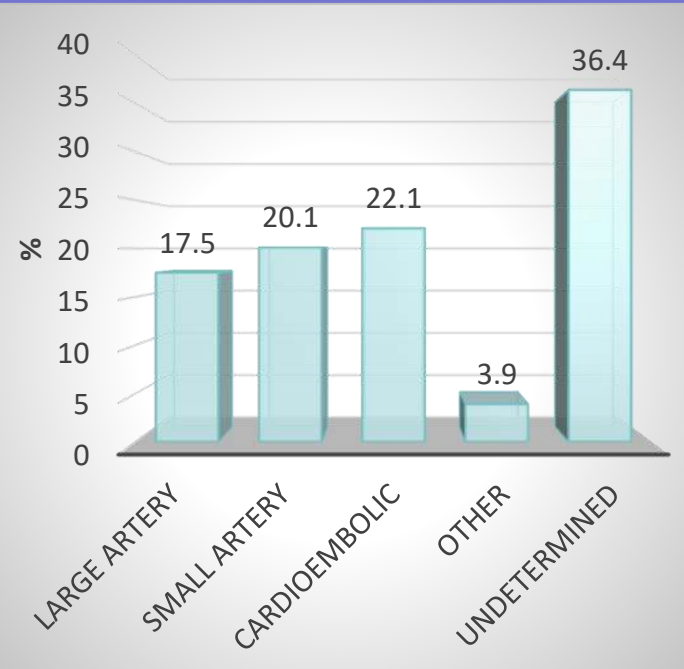
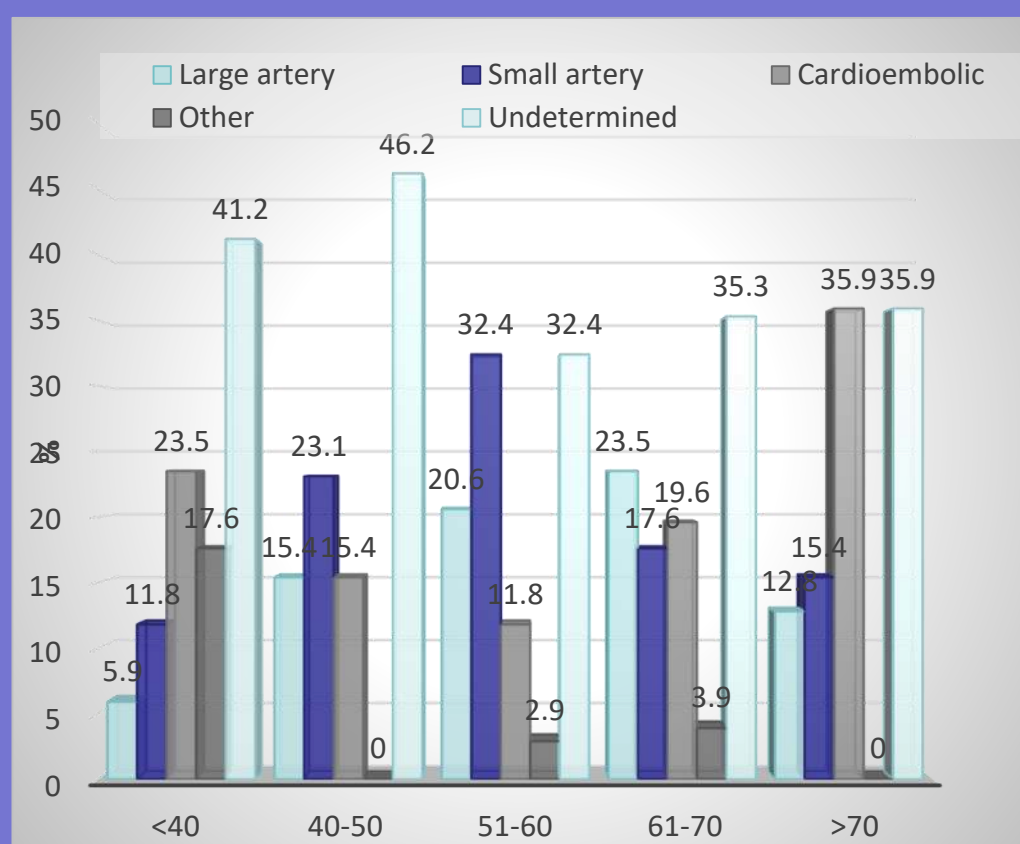
RESULTS AND OBSERVATIONS

- A total of 154 stroke patients were included in the study. There was no significant ($p>0.05$) association of age with stroke subtype (Figure 1).
- Distribution of stroke subtype - Cause was Undermined in 36.4% of patients. Cardioembolic stroke was noted among 22.1% patients and small artery was among 20.1% patients. Large artery occlusion was found among 17.5% patients (Figure 2)
- The percentage of Cardioembolic (40.6%) was higher than undetermined (35.9%) among whom LAE was present by both echo and voltage criteria and the association was statistically significant ($p=0.001$) (Figure 3).
- Hypertension was most common risk factor among the stroke patient in this study (61.6%), followed by Left Atrial enlargement (41.5%) and Diabetes mellitus (38.3%). Indexed left atrial diameter was significantly ($p=0.02$) higher among hypertensive (2.45 ± 0.32) patients than non-hypertensive (2.20 ± 0.24).



Conclusion -

- Second Highest frequency of LAE found in undermined group raises the possibility cardiogenic origin of stroke, at least in some of these patients. Paroxysmal AF or left atrial pathology without AF may explain this phenomena. As these patient would be prone to recurrent stroke, stroke patients of undermined aetiology with left atrial enlargement should be evaluated in detail including more prolonged holter.
- Further given the proven benefit of anticoagulant therapy in preventing left atrial thromboembolism in patients with AF, further studies may be worthwhile to determine optimal markers of atrial cardiopathy and the effect of anticoagulant therapy in patients with conclusive evidence of atrial cardiopathy, but no clear evidence of AF.



Stroke subtype	LA diameter (in cm)
Large artery	3.93±0.54
Small artery	4.10±0.48
Cardioembolic	4.48±0.46
Other	3.73±0.60
Undetermined	4.07±0.50
p-value#	0.001*