Distribution of Ischemic Stroke Etiologies According to TOAST Criteria in the last decade: are they changing?

Ivan Ghassaban, Ubaldo Coppola, Carlotta Di Cristofaro, Alessandro De Ciantis, Valentina Cannizzo, Federico De Santis, Matteo Foschi, Federica De Santis, Berardino Orlandi, Raffaele Ornello, Simona Sacco

OBJECTIVE

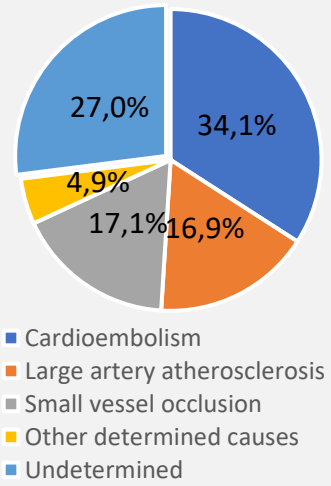
To analyze the distribution of ischemic stroke subtypes in a recent Italian cohort using the TOAST criteria and to compare the findings with global data

METHODS

We included consecutive patients with ischemic stroke from the prospective population-based registry of the district of L'Aquila, Italy. The study included all individuals residing in the district and undergoing acute cerebrovascular events since 2011. Patients were included from medical records, emergency medical services, general practitioners, and death certificates. For this study, we focused on the 2018-2022 period. The etiology of ischemic stroke was ascertained via the TOAST classification.

RESULTS

Out of 969 ischemic stroke cases, 330 (34.1%) were attributed to cardioembolism (CE), 262 (27.0%) to undetermined cause (UND), 166 (17.1%) to small vessel occlusion (SVO), 164 (16.9%) to large artery atherosclerosis (LAA), and 47 (4.9%) to other determined causes (OD). Among patients with stroke attributable to undetermined cause, 111 (46.8%) had an incomplete evaluation, 86 (36.3%) a negative evaluation, and 40 (16.9%) more than one probable cause. Sex distribution was different across the groups (p<0.001), with the highest female prevalence (62.4%) in the CE group and the lowest one (42.7%) in the LAA group. Age distribution was also different (p<0.001), with the highest median age (83, IQR 73-89) in the CE group and the lowest (69, IQR 61-79) in the OD group. Hypercholesterolemia had the highest prevalence in the LAA group (43.6% vs 43.4% in SAO, 36.2% in OD, 31.4% in CE, and 25.1% in UND; p<0.001), while cigarette smoking had the highest prevalence in the SAO group (17.2% vs 15.9% in LAA, 13.3% in UND, 9.1% in OD, and 7.6% in CE; p<0.001) and ischemic heart disease in the CE group (25.0% vs 20.6% in LAA, 13.7% in UND, 13.4% in SAO, and 8.5% in OD; p<0.001). Thirty-day case-fatality rate was 6.7% without differences among groups (p=0.187).



DISCUSSION

Updated data on the etiological categories of ischemic stroke are essential, as their distribuition may shift over time thereby requiring ongoing refinement of diagnostic therapeutic approaches. The most notable finding was the high prevalence of cardioembolic stroke compared to the global data (34.3% vs 22%), reflecting the population anging and control of atherosclerotic risk factor in western populations. A crucial factor to consider is the 27% of ischemic stroke classified as undeterminated etiology (UND), with nearly half (46.8%) resulting from an incomplete diagnostic assessment. This highlights potential gaps in the evaluation process that ma hinder accurate classification and, consequently, optimal patient management.

CONCLUSION

Our updated data on the etiological classification of ischemic stroke reflect current treands in Western populations such as the increasing prevalence of cardioembolism and identified still high proportion of patients with incomplete diagnostic evaluation.

REFERENCES

Ornello et. Al Distribution and Temporal Trends From 1993 to 2015 of Ischemic Stroke Subtypes: A Systematic Review and Meta-Analysis

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