

## Supplementary methods

### Transesophageal echocardiography (TEE)

Patients undergoing TEE fasted and received local pharyngeal anesthesia with 10% topical lidocaine prior to the examination. A commercially available TEE machine (iE33 xMATRIX, Philips) equipped with a multiplane 5-MHz transducer was used for the assessment of aortic atherosclerosis. TEE images were obtained using transgastric, midesophageal, and basal views. All segments of the thoracic aorta, including the ascending aorta, the aortic arch, and the descending aorta, were evaluated between 0 and 90 degrees. AA was defined as a discrete protrusion of the intimal surface of the aorta with different morphology and echogenicity. Plaque thickness was recorded as the whole thickness of the intima and media in the aortic wall and was measured perpendicularly in a frozen frame during systole.<sup>1</sup>

### Risk factors and definitions of variables

Hypertension was diagnosed when a patient showed resting systolic blood pressure  $\geq 140$  mmHg or diastolic blood pressure  $\geq 90$  mmHg in repeated measurements or was being treated with antihypertensive medication. Diabetes mellitus was diagnosed when a patient showed fasting blood glucose  $\geq 7.0$  mmol/L or was being treated with antidiabetic medications. Hyperlipidemia was diagnosed when a patient had low-density lipoprotein cholesterol  $\geq 4.1$  mmol/L or total cholesterol  $\geq 6.2$  mmol/L. Smokers were defined as current smokers or individuals who had

stopped smoking within one year before the current ischemic stroke. Presence of coronary artery disease was determined when a patient had a history of unstable angina, coronary artery occlusive disease, or myocardial infarction. Metabolic syndrome was diagnosed when a patient had more than three components of abdominal obesity (waist circumference  $> 102$  cm for men,  $> 88$  cm for women); triglycerides  $\geq 1.7$  mmol/L; low level of high-density lipoprotein ( $< 1.04$  mmol/L for men,  $< 1.30$  mmol/L for women); or blood pressure greater than 130/85 mmHg; or fasting glucose  $\geq 6.1$  mmol/L.<sup>2,3</sup>

### References

1. Cho HJ, Choi HY, Kim YD, Nam HS, Han SW, Ha JW, et al. Transoesophageal echocardiography in patients with acute stroke with sinus rhythm and no cardiac disease history. *J Neurol Neurosurg Psychiatry* 2010;81:412-415.
2. National Cholesterol Education Program (NCEP) Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults (Adult Treatment Panel III). Third Report of the National Cholesterol Education Program (NCEP) Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults (Adult Treatment Panel III) final report. *CCirculation* 2002;106:3143-3421.
3. Song TJ, Kim J, Song D, Nam HS, Kim YD, Lee HS, et al. Association of cerebral microbleeds with mortality in stroke patients having atrial fibrillation. *Neurology* 2014;83:1308-1315.