Stroke

Journal

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Definition

Permanent death of neurons caused by inadequate perfusion of a region of brain or brainstem.

Classification

This disturbance is due to either ischemia (lack of blood flow) or hemorrhage.

Ischemic stroke.

Hemorrhagic stroke

The term major stroke is used to distinguish a full-blown stroke from a minor stroke, or transient ischemic attack (TIA).

Epidemiology

see Stroke epidemiology.

Etiology

Extra cranial carotid artery dissection and vertebral artery dissection is an important cause of stroke, especially in young people.

Stroke etiology was classified as cardioembolism in 22 patients (59.4%), large-artery atherosclerosis in 8 (21.6%), and undetermined in 7 (18.9%). The clots from cardioembolism had a significantly higher proportion of red blood cells (37.8% versus 16.9%, P = .031) and a lower proportion of fibrin (32.3% versus 48.5%, P = .044) compared with those from large artery atherosclerosis. The proportion of red blood cells was significantly higher in clots with a susceptibility vessel sign than in those without it (48.0% versus 1.9%, P < .001), whereas the proportions of fibrin (26.4% versus 57.0%, P < .001) and platelets (22.6% versus 36.9%, P = .011) were significantly higher in clots without a susceptibility vessel sign than those with it.

The histologic composition of clots retrieved from cerebral arteries in patients with acute stroke differs between those with cardioembolism and large-artery atherosclerosis. In addition, a susceptibility vessel sign on gradient echo sequence is strongly associated with a high proportion of red blood cells and a low proportion of fibrin and platelets in retrieved clots.¹
There is conflicting evidence for whether or not the incidence of stroke is influenced by the daily temperature.

The daily temperature had measurable and different associations with the number of strokes and strokes subtypes in Seoul, Korea.

**Pathophysiology**

Pathophysiology and Neuroprotective Strategies in Hypoxic-Ischemic Brain Injury and Stroke.

**Syndromes**

see Stroke syndromes.

**Diagnosis**

A rapid and reliable diagnostic test to distinguish ischemic from hemorrhagic stroke in patients presenting with stroke-like symptoms is essential to optimize management and triage for thrombolytic therapy.

Stroke has been extensively studied in clinical practice and experimental research by means of MR images with ever-emerging new technologies, such as DWI, PWI, and ADC maps. More recently, different PWI-derived parameters, such as the rCBV, the relative cerebral blood flow (rCBF), the relative MTT, and the time to peak (TTP) have been applied to quantify the perfusion deficit and to evaluate the temporal infarct growth in acute stroke either in patients or in small animals with high field strength MR spectrometers.

**Differential diagnosis**

- TIA
- Watershed infarct

**Outcome**

see Stroke outcome.

**Prevention**

Effective strategies for reducing the risk of developing problems after stroke remain undefined.
Potential strategies include intensive lowering of blood pressure (BP) and/or lipids.

**Treatment**

see Stroke treatment.

**Case series**

611 ischemic and 805 hemorrhagic stroke patients who were admitted within 24 h after the symptom onset. Data were analyzed with independent t test and Chi square test, and then with multivariate logistic regression analysis.

In ischemic stroke, National Institutes of Health Stroke Scale (NIHSS) score (OR 1.08; 95 % CI 1.06-1.11; P < 0.01), white blood cell count (OR 1.11; 95 % CI 1.05-1.18; P < 0.01), systolic blood pressure (BP) (OR 0.49; 95 % CI 0.26-0.90; P = 0.02) and age (OR 1.03; 95 % CI 1.00-1.05; P = 0.03) were associated with in-hospital mortality. In hemorrhagic stroke, NIHSS score (OR 1.12; 95 % CI 1.09-1.14; P < 0.01), systolic BP (OR 0.25; 95 % CI 0.15-0.41; P < 0.01), heart disease (OR 1.94; 95 % CI 1.11-3.39; P = 0.02) and creatinine (OR 1.16; 95 % CI 1.01-1.34; P = 0.04) were related to in-hospital mortality. Nomograms using these significant predictors were constructed for easy and quick evaluation of in-hospital mortality.

Variables in acute stroke can predict in-hospital mortality and help decision-making in clinical practice using nomogram 5).


