Editorial

Carotid Disease and Stroke

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Carotid Disease and Stroke. Stroke is a major cause of disability, mortality, dementia, and depression in the world. Carotid atherosclerosis is recognized as an important cause of stroke and a modifiable factor for the risk reduction of subsequent stroke. Randomized clinical trials have shown efficacy of carotid endarterectomy (CEA) in secondary stroke prevention. Carotid stenting has emerged as a new and less invasive alternative to CEA. Continuous advances in medical therapy have made remarkable success in stroke risk reduction. These new treatment modalities were not widely applied in most interventional trials, making extrapolation of an optimal intervention strategy evermore complex in patients with symptomatic and asymptomatic carotid disease. The determination between "symptomatic" and "asymptomatic" carotid stenosis is a pivotal determinant of management of carotid disease. This special issue provides an updated synopsis of risk factors, imaging modalities, and different treatment options of atherosclerotic carotid disease.

Some of the highlights are included in the following:

- (i) In the basic science rat model, the neurotrophic effect of an immunosuppressant agent after transient global cerebral ischemia is presented by Z. N. Sharifi et al.
- (ii) A paper of S. Kovacic and M. Bakran provides a discussion of the main genetic investigations associated with human atherosclerotic vascular diseases.
- (iii) The paper by A. Chatzikonstantinou et al. summarizes the literature of the natural history of the carotid disease and provides evidence that carotid stenosis is a sensitive marker of systemic atherosclerosis.
- (iv) The causal relationship between stroke-free patients with advanced carotid stenosis and cognitive decline is presented in the paper by I. Martinić-Popović et al.
- (v) The paper by V. Vuković-Cvetković presents a comprehensive review of (microembolic signal) MES detection and stroke risk by transcranial doppler (TCD)—an important ultrasound technique shown to successfully stratify asymptomatic patients at high risk for future cerebrovascular events.
- (vi) The paper by M. Roje-Bedekovic et al. explores the visual evoked response in patients with severe carotid stenosis, a marker which serves as an important preoperative functional assessment of intracranial circulation.
- (vii) The paper by L. Pedrini et al. discusses near infrared spectroscopy (NIRS) during CEA as a reliable method in detection of clamping ischemia and in the prevention of clamping-related neurologic deficits during CEA.
- (viii) In the paper by H. Koerner et al., periprocedural ischemic lesions on diffusion-weighted imaging (DWI) during stenting procedures of supra-aortal arteries are discussed. The level of platelet inhibition is presented as an intriguing approach to determining the relationship between nonresponders to clopidogrel and clinically silent microembolization.
- (ix) The paper by F. Sallustio et al. presents a case series data suggesting that early carotid artery stenting may be considered as a safe alternative to CEA after IV

thrombolysis in selected patients who are at high risk of stroke recurrence.

The primary and secondary stroke prevention approaches are exciting clinical topics in evolution with many opportunities and options for both current treatment and future discoveries. Innovations in genetics, pharmacogenomics, and vascular imaging will likely provide specific pathophysiological targets, tailored treatments, and personalized medical management for individuals with atherosclerotic carotid disease. We hope that this special issue will serve as an overview of the accomplishments, current practices, and controversies in the field as well as a useful reference for management of patients with carotid disease and future research opportunities.

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