Further Section

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Editorial

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On January 14-15, 1994, the Bertelsmann Foundation and the Department of Neurology (Mannheim) at the Ruprecht-Karls-University of Heidelberg organized an international workshop in Gttersloh, Germany. Scientists from many countries and various disciplines, who otherwise would rarely meet at a scientific symposium (physiologists, neurologists and neuroradiologists, immunologists, pathologists, hematologists and mathematicians), gathered to exchange hypotheses and ongoing research data with regard to cerebral embolism. This issue has gained increasing importance since large-scale studies based on material from stroke data banks showed that probably more than two thirds of all cerebral ischemic events are due to embolism rather than local thrombosis (Martin and Bogousslavsky, Fieschi et al.). These data have caused a change in interest: from the sources of embolism to the recipient side and the components (Caplan), formation and development of embolic material (Kienast). Coagulation and fibrinolysis, vessel wall and cellular element interaction as well as complex enzymatic processes form the basis for the generation of embolism

(Mann and Kalafatis; Yatsu et al.); however, local hemodynamic alterations, which are probably nonlinear and time dependent, are now known to be decisive for the generation of atherosclerotic plaques and the transformation of a quiet stream into an exploding shower (Schmid-Schon-bein and Saupe).

Apart from the concentration on modern aspects of pathomechanisms of embolism, this workshop was devoted to recently evolved diagnostic issues, e.g. the use of low-frequency pulsed Doppler techniques for the detection of high-intensity transient signals (HITS) as potential indicators of microembolism: members of the conference agreed that experimental evidence is accumulating, demonstrating that HITS reflect intraarterial embolic material, such as thrombus, atheroma and platelet aggregates of various sizes and flow velocities (Markus). However, problems in definition, artifact identification and the ultrasound methodology used result in considerable differences in the incidence and frequency of HITS observed in clinical studies of patients with carotid artery disease (Sitzer et al.; Ries et al.). Premature interpretation of HITS as a poor prognostic sign in patients with or without symptoms of cerebrovascular ischemia should be avoided and a prospective examination should be carried out instead. This is also true

for the relationship of HITS with stroke patterns in brain imaging (Tegeler et al.). Yet, the methodology is already applicable to the diagnosis of a patent foramen ovale as a novel risk factor for cerebral embolism of cardiac origin (Schminke et al.). Magnetic resonance imaging (Schwartz) and quantitative ultrasound flow volumetry (Eicke and Tegeler) may provide further insight into this area of research.

New insights into pathomechanisms and the exciting prospect of directly monitoring HITS as markers of cerebral microembolism resulted in stimulating considerations of therapy aiming at thrombolysis of hyperacute embolism (Molinari) or its prevention (Mohr and WARSS Group).

It is the objective of this special issue of *Cerebrovascular Diseases* to inform a larger audience of the contents and results of the workshop, to encourage further discussion about this important subject and to stimulate foundations and scientists to support the exchange of ideas between scientists of different specialities in a similarly unconventional manner. Fowears, the Bertelsmann Foundation and the German Stroke Foundation have set an example by trying to bridge the still wide gap between clinical and basic research, and now they have generously supported the publication of this extended issue of the Journal.