The Princeton Conference has a one-half century history as a unique, highly focused forum for the presentation and discussion of current scientific information and future directions in stroke research. The 24th Princeton Conference on Cerebrovascular Disease was held in Baltimore, Maryland, April 2 to 4, 2004, at the Baltimore Marriott Waterfront Hotel. This conference focused on the current status and future directions of stroke pathophysiology, diagnosis and treatment, with emphasis on cellular and molecular mechanisms of ischemic cell death and cell repair, and clinical aspects of imaging, risk factors, and therapeutic strategies in stroke. There were 10 major areas of presentation and discussion. The meeting began with a discussion of vascular dementia and included discussion of amyloid and epidemiology of Alzheimer disease and vascular dementias. The next discussion concerned multimodal imaging and its future in stroke. The role of sex steroids in stroke was the next area of discussion. Estrogen and progesterone were discussed as potential neuroprotection agents, and their differences as neuroprotectants in animal models was discussed in light of the recent major negative clinical trials. The ischemic penumbra, what it is, how to image it and its molecular identification was then discussed, and this was followed by an in-depth discussion of ischemic preconditioning. Cerebral ischemic preconditioning was considered from its genomic aspects and its occurrence in humans and the similarities between cerebral ischemic preconditioning and myocardial ischemic preconditioning. The conference continued forward to discuss recovery and rehabilitation in stroke, including progenitor cells, functional imaging and forced use-constraint therapy trials. Attention was then focused on statins and stroke, how they work in vessels and neurons, how they work in endothelium and on signaling mechanisms, and finally their role in inflammation in stroke. Clot lysis and thrombolysis were the next areas of discussion, and attention was focused on imaging clots, extracting clots, ultrasound identification of clots, and the potential injurious effect of lytic agents. Genomics and proteomics in stroke took the next discussion session, and topics such as multiple genes in stroke, clinical translated stroke genomics and phosphodies- terase 4D were discussed. The final session of the conference was devoted to emerging stroke therapies, new therapeutic targets for neuroprotection, and fast track therapy for drugs for stroke.

These sessions were unique in that each session was comprised of four speakers, two of whom were clinically oriented individuals, and two were basic scientists. Each speaker was instructed to orient their comments along “translational” lines and to try to make their comments relevant to the patient. This translational theme was assisted by the fact that the co-chairs of each session (one a clinician, one a researcher) were instructed to lead the discussion along translational lines and bring the discussion back to the patient. Thus, this Princeton Conference provided a unique forum for promoting collaborative interaction in stroke research between the clinician and the basic scientist. There were vigorous interactive discussions among the participants, and the speakers presenting state-of-the-art information made for a very successful and memorable conference. The attendees were also treated to a fantastic lecture given by Peter Agre, the Nobel Prize winner in chemistry in 2003, concerning Aquaporin Water Channels, from Atomic Structure to Clinical Medicine. This lecture, too, kept in mind the overall theme of the conference of translational science.

There was much enthusiasm and excitement in the presentations and in the discussions that ensued, and I believe this reflected the success of the conference. I hope the excitement and enthusiasm of this conference carries over into the next Princeton Conference, and I hope that much new work will result from the discussions of the 24th Princeton Conference and thus advance our knowledge of the basic and clinical aspects of stroke in patients.

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