Meetings

Cerebrovascular Disease: Behavioral Changes

The ever-increasing social and economic importance of behavioral disability associated with cerebrovascular disease provided the impetus for the organization of a workshop on behavioral changes in cerebrovascular disease which was held in Swampscott, Massachusetts, 18 to 20 September 1968. The purposes of the workshop were to examine the present state of knowledge in this area, to identify problems requiring further investigation, and to consider research approaches that might accelerate the acquisition of needed information. In addition to questions of immediate clinical interest, more basic issues that require resolution in order to provide a rational basis for prediction and management with respect to the behavioral deficits of the patient with cerebrovascular disease were also considered.

The workshop began with a description by J. Segarra and J. Angelo (Boston Veterans Administration Hospital) of the "syndrome of the mesencephalic artery." This syndrome serves as an example of a well-defined cerebral lesion of vascular origin producing a particular type of behavioral deficit, in this case, akinetic mutism. Considering more general problems associated with the identification of the anatomical determinants of behavioral change, J. Moossy (Bowman Gray School of Medicine) pointed out that cerebral infarction provides the most favorable opportunity for the study of brain-behavior relations in human subjects. At the same time, he emphasized the need for precise definition of both the anatomical and behavioral aspects of the equation if meaningful correlations are to be achieved; he cited akinetic mutism as a behavioral concept that has been defined and classified in different ways by various observers. Moossy went on to discuss transient global amnesia as an identifiable behavioral syndrome of cerebrovascular origin that deserves clinicopathologic study.

Continuing the theme of the anatomical and physiological mechanisms underlying behavioral impairment in cerebrovascular disease, A. B. Baker and M. J. Meier (University of Minnesota Medical School) generalized that such impairment is determined by neuronal changes associated with cerebral ischemia or infarction. Drawing on the findings of a comparative study of stroke in the United States and Japan, they reported that behavioral impairment as well as degree of rated clinical neurological dysfunction appeared to be significantly less severe in Japanese patients after vascular occlusion. This difference is ascribable to some degree to differing trends with respect to type of cerebrovascular involvement in the two groups. However, even when this and other possible determining factors are controlled, a difference in behavioral outcome is still evident. Thus factors of a cultural and constitutional nature require consideration in evaluating the behavioral effects of cerebrovascular disease.

N. Geschwind (Boston University School of Medicine) discussed the social, theoretical, and diagnostic significance of aphasic disorders following stroke. From a social and economic standpoint, aphasia is probably the most important behavioral impairment resulting directly from cerebrovascular disease. However, we lack precise knowledge of the number of aphasic patients in the United States, the conditions under which they live, or what course the disability takes. Certainly this knowledge is necessary for the formulation of treatment programs. The view that chronic cerebral infarction presents a most favorable opportunity for studying problems of cerebral localization in man is particularly applicable to the aphasic disorders. Geschwind then described the distinctive aphasic syndromes resulting from involvement of specific cerebral vessels. R. J. Joynt (University of Rochester School of Medicine) pointed out that factors other than the locus of the lesion have a determining effect on the resulting language disturbance; he implicated the rapidity of development of the lesion as a particularly significant variable. O. Spreen (University of Victoria) discussed recent advances in the field of the assessment of aphasic disorders and their significance in clarifying the associations between aphasic phenomena and locus of lesion.

M. J. Meier (University of Minnesota Medical School) presented an analysis of the role of objective behavioral methods in the assessment of cerebrovascular occlusive disease. He included a review of past research findings, a description of the comparative investigation of the behavioral sequelae of cerebrovascular disease in the United States and Japan, and a summary of the results of a study which attempted to predict neurological outcome from behavioral assessment shortly after stroke. R. M. Reitan (Indiana University Medical Center) pointed up some of the critical issues which need to be considered in objective behavioral assessment of patients with brain lesions. M. W. Van Allen (University of Iowa) pointed out that the accuracy of localization of cerebral lesions by radiological techniques is substantially higher than that which is likely to be reached by behavioral tests. From a pragmatic standpoint, the neuropsychologist's contribution to understanding of the patient with cerebrovascular disease would seem to lie more in the direction of careful description of the pattern of loss shown by the patient and its implications for prognosis and management.

Language rehabilitation was the topic of a critical analysis by F. L. Darley (Mayo Clinic) who described current therapeutic approaches, particularly stimulation therapy and programmed instruction. At the present time, it is not possible to evaluate the relative merits of these approaches. There are indications that language rehabilitation may foster recovery from aphasia, especially if initiated early and extended temporally. It is difficult, however, to demonstrate unequivocally the specific influence of any type of treatment. Lack of precise knowledge about the course of untreated aphasic disorder, the possibility of spontaneous recovery, and, conversely, the fact that the underlying pathological process may be progressive or repetitive introduce complications which have hindered achieving a precise assessment of the effects of the single variable of formal language therapy. In commenting on Darley's presentation, D. P. Shankweiler (University of Connecticut) emphasized the

numerous problems which must be faced in evaluating the effectiveness of various types of treatment.

L. Diller (New York Institute of Rehabilitation Medicine) presented a survey of the current status of behavioral approaches to the improvement of sensorimotor capacities and social competence of the hemiplegic patient. He discussed the contribution that laboratory research may make to more effective practice. G. Gullickson, Jr. (University of Minnesota Medical School) underscored many points made in the presentation and emphasized the need for controlled research in the area. P. H. Stern (Burke Foundation, White Plains, N.Y.) described methods for the quantitative testing of motility defects in patients with stroke.

S. Horensein (Western Reserve University School of Medicine) reviewed the alterations in personality and emotionality accompanying cerebral disease; he considered the most effective methods of management and discussed the indications for needed investigative work. For example, the relationship of "nonanatomic" factors (such as life situation, personality structure, intelligence) to the occurrence of infarction and resulting clinical picture is not really known. Current information is circumstantial in nature, and a major research project of a prospective character would be required to obtain hard data on this extremely important question. Planned future research should provide for longitudinal investigation of the patient over an extended period of time since many of the phenomena that are observed are unstable during the first few months of illness. In his discussion, R. B. Bauer (Wayne State University College of Medicine) emphasized the relatively greater importance of organic, as opposed to "nonanatomic," factors in the production of emotional and personality disorder in stroke patients. R. Satran (University of Rochester School of Medicine) described the findings of a clinical study in which the occurrence of cerebrovascular disease was apparently related to life situational factors. C. H. Millikan (Mayo Clinic) emphasized the need for conceptual clarification in this area.

In a final commentary, A. L. Benton (University of Iowa) took issue with the assumption that cerebrovascular disease, which is not associated with infarction or ischemia, does not result in behavioral impairment. He cited experimental studies of broadly defined normal samples in which cerebrovascular status has been found to be related to efficiency in tasks involving speed of reaction and short-term memory. He also called attention to the looseness of terminology and conceptualization in the field of aphasia and to the fact that lack of agreement with respect to both classification and assessment procedures have hindered progress in resolving the unsettled issues raised during the course of the workshop.

The workshop was held under the auspices of the Joint Council Subcommittee on Cerebrovascular Disease of the National Institute for Neurological Diseases and Stroke and the National Heart Institute.

Early publication of the major presentations and discussions at the workshop, together with an evaluative summary, is planned.

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