BOOK REVIEWS


Mchledishvili (pronounced mshed-lesh-velee) is one of the foremost Russians in the field of cerebral circulation, and his book is based largely on extensive animal experiments. It is, however, closer to clinical problems than some other recent monographs.

After the introductory chapters on history and anatomic background, the effect of experimental shock on cerebral circulation is discussed in chapter III (pp. 44-64) with emphasis on compensatory mechanisms. In case of drop in arterial blood pressure to zero or close to zero, various compensatory mechanisms, including the pial arteries, maintain blood flow in the cerebral capillaries for several minutes, preventing or delaying for a limited time development of irreparable damage. The effect of venous stasis and traumatic cerebral edema is, in part, compensated by active vasoconstriction of magistral and pial arteries, probably due to a reflex mechanism elicited by baroreceptors in the venous sinuses (chapter IV, pp. 65-81). Occlusion of the jugular vein and asphyxia involve other types of compensatory mechanisms: namely, constriction of magistral arteries and dilatation of pial arteries. This leads to the important conclusion that magistral and pial arteries often react differently and that both systems form a system of mutual compensation.

The importance of pial arteries is stressed for adaptation of cerebral circulation to metabolic demands (pp. 82-103), and they are studied by means of the local application of strychnine to the surface of the brain (chapter IV), which results in convulsions and increased local metabolism. Changes of the blood flow in pial arteries (dilatation) are shown together with changes of the electroencephalogram. The compensatory dilatation is probably due to a neurogenic reflex mechanism; the author, however, stresses the need for further experimental exploration.

The reaction of cerebral vessels depends on the general state of the organism. Both magistral and pial arteries are highly sensitive to nervous and humoral stimuli. In general, however, cerebral vessels do not participate in the regulation of arterial blood pressure and vice versa; in regulation of the cerebral circulation local vessels are more important than the magistral arteries.

These examples give an impression of the content of the volume. The author concludes, “The vascular mechanisms may well compensate for different types of disturbance of cerebral circulation. However, compensation of one type of circulatory disturbance may generate other types of circulatory disturbance.”

The author is aware of the limitation of transposing observations in animal experiments to clinical application. The book is stimulating and informative to the clinician and physiologist. The large material is well presented and profusely illustrated.

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This book is a collection of chapters, each dealing with a specific subject of cardiovascular surgery and each written by an acknowledged expert in the field concerned. Three contributors are from the United States, one is from South Africa, and five are from England. As explained in the foreword, each chapter is self-contained,
meaning that there has been no attempt to coalesce the several topics within a single area or to include the entire field of cardiovascular surgery. The editors do not comment upon the material presented.

Certain chapters are outstanding. The report on the surgical anatomy of the heart is well illustrated and clearly written. The portion on the conduction mechanism of the heart and the anatomic aspects of the heart in various pathologic states is of particular value. Other excellent chapters deal with aortic valvular malformations, aneurysms of the ascending aorta and arch, cardiac surgical procedures in the first months of life, and transposition of the great arteries. In one chapter M. I. Ionescu, a pioneer in the use of heterografts, discusses his experience to date in replacement of the mitral valve with aortic heterografts.

The title of the volume suggests that the text includes a description of modern trends in cardiac surgery, but in a few chapters the material already seems out of date. For example, in a discussion of rheumatic mitral valvular disease the authors advocate performance of closed commissurotomy in the presence of thrombus in the left atrial appendage which extends into the cavity of the left atrium. They also appear to be reasonably satisfied with a closed approach for second or third re-operations for mitral stenosis, for patients who have had a previous embolism, for calcified mitral stenosis, and for combined mitral stenosis and insufficiency—situations in which most surgeons today would prefer an open approach to the mitral valve. The chapter on endocardial cushion defects does not contain a reference to other writings in the field later than 1963, and thus excludes some of the newer developments in the understanding and treatment of these anomalies. One may also disagree with some of the statements on operative technic, such as advocacy of the use of Ivalon for closure of the ventricular septal defect, a material which has been abandoned by nearly everyone as being unsatisfactory.

In the chapter on double-outlet right ventricle the illustrations are confusing and misleading. Figure 1, for example, purports to illustrate the usual type of double-outlet right ventricle without pulmonary stenosis. Actually, a very rare form of double-outlet right ventricle is depicted in which the aorta and the pulmonary artery are transposed. In the usual form, without pulmonary stenosis, the aorta is lateral or posterolateral to the pulmonary artery, permitting repair of the defect by insertion of a patch from the defect to the aorta with the use of the dorsal portion of the right ventricle as the floor of a tunnel. Similarly, in figure 3, which is said to be an illustration of double-outlet right ventricle with pulmonary stenosis, the great vessels are again transposed.

In spite of these shortcomings, the book provides a useful reference to the state of the knowledge in 1968 within selected areas of cardiovascular surgery.

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