Book Reviews

Insulin Anniversary

Impact of Insulin on Metabolic Pathways. A symposium, Jerusalem, Oct. 1971. ELEAZAR SHAFRIR, Ed. Academic Press, New York, 1972. viii, 570 pp., illus. $13.50.

The International Symposium on the Impact of Insulin on Metabolic Pathways was one of a number of such events that were held around the world in 1971 to commemorate the 50th anniversary of Banting and Best's discovery of insulin. The symposium was planned to attract a forum of prominent contributors and to present the results of research done locally. It was attended by 550 participants and included 40 lectures, 3 panel discussions, and approximately 120 short communications, which form the basis of this book.

Notwithstanding the title, a wide range of topics related to diabetes is discussed. The lectures deal with factors affecting insulin secretion, pancreatic beta cell function in prediabetes, the relationship of growth hormone and insulin, the effect of insulin on metabolic pathways and enzyme regulation, and hormonal control of adipose tissue metabolism. The panel discussions, which are reported in their entirety, consider questions related to the indications for use of oral hypoglycemic agents, complications in diabetics and their management, and future trends in diabetes research. The short communications highlight the multidisciplinary approach of investigative endeavor in this area, since aspects of physiology, biochemistry, pharmacology, genetics, nutrition, anatomy, and pathology related to insulin and diabetes are presented.

I particularly enjoyed the strong historical flavor that permeates the book. The foreword by Best is a beautifully constructed, concise statement of events leading up to the momentous discovery in 1921. The economy of words and modest approach of his account of the crucial experiments that he and Banting performed only serve to increase one's admiration for their achievement. The chapters by J. O. Leibowitz and J. J. Groen deal objectively with the concept of diabetes in historical perspective, whereas those by L. Nelken and R. Carrasco-Formiguera are highly personal accounts of the historical events and climate in the pre-insulin era and the impact that the isolation and availability of this hormone had on physicians, scientists, and patients. The controversial matter of the role of the Romanian scientist N. Paulesco in the discovery of insulin is discussed by Pavel and his colleagues, and a reply to the Romanian Academy of Sciences by Tiselius, director of the Nobel Institute, included in their paper makes interesting reading, as does the subsequent discussion of this topic by the symposium participants.

As one might expect in a book of this nature, there is a great deal of variability in the scope and quality of the scientific papers, but most provide useful reviews of their authors' work. The chapter by Renold and his colleagues from Geneva dealing with the endocrine-metabolic abnormalities in rodents with hyperglycemic syndromes is of particular interest. For many years research related to diabetes has been hampered by the lack of a suitable animal model. Renold describes a variety of hyperglycemic states, some of which parallel the human disease closely, in ten species and strains of mice, rats, and hamsters. The development of thickened glomerular capillary basement membranes in the spiny mouse, *Acomys cahirinus,* and the presence of ocular lesions including saccular retinal aneurysms, loss of retinal capillary endothelial and mural cells, and changes in the ultrastructure of the capillary basement membrane in rats rendered chronically diabetic with streptozotocin are provocative findings of great significance. New information concerning the molecular events that occur when a rising glucose concentration stimulates both the secretion and biosynthesis of insulin is presented by Kipnis and Permutt, and Fajans and his co-workers review their extensive investigations into the mechanisms whereby amino acids effect insulin release in vivo. Stimulation of insulin release by synthetic nonmetabolizable amino acids such as 2-amino-bicyclo-(2,2,1)-heptane-2-carboxylic acid and 4-amino-1-guanyl-piperidine-4-carboxylic acid indicate that under certain conditions this process may be activated by the transport of these amino acids across the beta cell membrane or by interaction with a membrane receptor site. The studies on cerebral edema in diabetic coma by Kleeman are of considerable interest, and the panel discussion entitled "Insulin and metabolism: forecast of trends in research" provides a useful overview of the many unresolved basic and clinical problems in this field.

In summary, this book is a convenient source of information and ideas in the study of insulin action and diabetes. Although there are a number of other recently published symposia covering similar topics, its rapid publication and detailed and well-edited discussions make this one worthwhile reading.

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The Other Hormone

Glucagon. Molecular Physiology, Clinical and Therapeutic Implications. PIERRE J. LEFEBVRE and ROGER H. UNGER, Eds. Pergamon, New York, 1972. xiv, 370 pp., illus. $37.50.

For 50 years now, glucagon has been overshadowed by insulin. Since it is not likely that we will see TV specials in 1973 celebrating the golden anniversary of glucagon's discovery, this handsome monograph is timely. It does an admirable job of summarizing what is known and suspected thus far about glucagon. Its 27 authors by and large constitute the membership of the international and somewhat exclusive "Glucagon Club."

The book is actually a conglomerate of 22 independent reviews (several with multiple authorship), of which some are telegraphic in style and others are exhaustingly detailed. Here, the women excel: not only are they better writers but they also seem more scientifically cautious and critical than a few of their confreres. Ann Lawrence's guarded chapter on the role of glucagon in causing or contributing to human disease other than diabetes is exceptionally interesting, lucid, and provocative. Lise Heding, writing on the