

Hepatitis Frontiers

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Foreword

In the past few years a number of timely and interesting symposia have been sponsored by the Henry Ford Hospital. These have been on an international level, bringing together from many parts of the world students of the subject under discussion. The symposia have made an unusually significant contribution to progress in various areas of medical research. This has been due, in part, to a fortunate choice of subject matter and to the participation of many well-qualified scholars; but the character of the symposia, their freedom of discussion and interchange of ideas and new information, has been the primary factor in their success.

It would indeed be difficult to conceive of any topic more appropriate than viral hepatitis for such a symposium, the transactions of which are recorded in the present volume. This subject touches intimately on a great many disciplines in the medical sciences, including among others the anatomy and physiology of the liver; its more tangible functions, and methods of measuring their aberration in disease, especially viral hepatitis; the pathology of hepatitis, and the fascinating and controversial question of its importance in relation to chronic liver disease, especially cirrhosis; clinical diagnosis and treatment; and, of paramount importance, virology and epidemiology. In World War II, as in previous wars, there was a striking increase in morbidity incidence of the disease, but its viral etiology was now recognized for the first time and genuine forward progress was begun. Nevertheless, infectious hepatitis is probably the most important of the viral diseases yet unconquered, at least insofar as any useful concentration of the virus is concerned. Thus the present symposium was especially timely in that some current, important advances in this area were described.

The wide range of subtopics undoubtedly contributed greatly to the general interest and the feeling that the symposium was soundly conceived and its program well planned. All who attended will be grateful to the planning committee and will appreciate the generous sponsorship of the Henry Ford Hospital and its staff; and all who have an opportunity to read these transactions will be grateful to the publisher, Little, Brown and Company, for assuming the financial responsibility for publication.

CECIL J. WATSON, M.D.

Contents

Participants in the Formal Program	v
Discussants	ix
Foreword	xi

I. ANATOMY, PHYSIOLOGY AND PATHOLOGY OF THE LIVER

Moderator, CHARLES H. BEST

1. The Structural and Functional Acinar Unit of the Liver — Some Histopathological Considerations <i>A. M. Rappaport</i>	3
2. Multiple Parameters Needed to Adequately Describe the Status of the Hepatic Circulation <i>Ralph W. Brauer</i>	19
3. Pathologic Physiology of Hepatitis <i>Leon Schiff</i>	31
DESIGNATED DISCUSSION, <i>Bollman</i> ; GENERAL DISCUSSION, <i>Watson, Davidson</i>	47
4. Geographic Pathology of Hepatitis <i>Kenneth R. Hill and Gerrit Bras</i>	51
5. Pathologic Anatomy of Early Stages of Viral Hepatitis <i>Hans F. Smetana</i>	77
6. Pathologic Aspects of the Late Stages of Viral Hepatitis <i>Archie H. Baggenstoss</i>	113
7. Cirrhosis in Young Females: Its Possible Relation to Infectious Hepatitis <i>H. G. Kunkel and A. G. Bearn</i>	131
DESIGNATED DISCUSSION, <i>Gall</i> ; GENERAL DISCUSSION, <i>Sherlock, Bjørneboe, Krainer, Rappaport, Hill, Smetana, Baggenstoss</i>	136

II. VIROLOGY AND EPIDEMIOLOGY

Moderator, GILBERT DALLDORF

8. Etiology of Hepatitis <i>F. O. MacCallum</i>	145
9. Tissue Culture in the Isolation of the Hepatitis Virus <i>I. William McLean, Jr.</i>	153
10. Studies on the Hepatitis Virus <i>Sven Gard and Knut Alin</i>	169
11. The Growth of Organ Cultures of Liver and Their Use in the Study of Hepatitis <i>Frederick B. Bang</i>	173
DESIGNATED DISCUSSION, <i>Weller</i> ; GENERAL DISCUSSION, <i>Stokes, Brauer, Martini, Sass-Kortsak, Smetana, Hok, Stulberg</i>	177
12. Epidemiology of Infectious Hepatitis <i>John R. Paul</i>	183
13. The Epidemiology of Serum Hepatitis <i>W. Paul Havens, Jr.</i>	191
14. Epidemiology of Hepatitis — Military Experience <i>Ross L. Gauld</i>	199
15. Certain Epidemiological Features of Infectious Hepatitis During the Delhi Epidemic, 1955-1956 <i>R. Viswanathan</i>	207
16. A Water-Borne Urban Epidemic of Hepatitis <i>Joseph L. Melnick</i>	211
17. Endemic Viral Hepatitis in an Institution: Epidemiology and Control <i>Robert Ward, Saul Krugman, Joan Giles and Milton A. Jacobs</i>	227
18. Epidemiological Aspects of Acute Hepatitis in Chile <i>Ricardo Katz, Abraham Horwitz and Héctor Ducci</i>	237
DESIGNATED DISCUSSION, <i>Smetana</i> ; GENERAL DISCUSSION, <i>Bjørneboe, Gard</i>	241

III. PREVENTION—BLOOD DONORS AND STORAGE PROBLEMS

Moderator, JOHN R. NEEFE

19. Nutrition As a Protective and Therapeutic Factor in Hepatitis 247
Paul György

20. Turbidity Reaction Mechanisms and Turbidity Measurements
in the Study of Hepatitis 255
John G. Reinhold

21. Selection of Blood Donors: Value of Hepatic Function Tests
for the Detection of Carriers of Viral Hepatitis 263
*Robert F. Norris, Dicran Kassouny, DeWitt T. Hunter, Jr.
and John G. Reinhold*
DESIGNATED DISCUSSION, *Ducci*; GENERAL DISCUSSION, *MacLagan, Davidson,
Sherlock, Reinhold, Norris* 276

22. Storage of Blood Plasma: Prevention of Virus Hepatitis by
Room Temperature Storage of Pooled Plasma 281
J. Garrett Allen and Wynn A. Sayman

23. Evaluation of the Risk of Transmitting Hepatitis by the Ad-
ministration of Dried Fibrinogen (Human) 287
H. D. Anderson and Sam T. Gibson

24. The Distribution of Certain Viruses in the Fractionation of
Plasma 297
Robert B. Pennell

25. The Effect of Heating for Ten Hours at 60° C. on the Optical
Density, Electrophoretic Distribution and Ultracentrifuge Pat-
terns of Human Plasma Protein Solutions 311
Dwight J. Mulford and Edward H. Mealey

26. Diminishing the Risk of Hepatitis in Blood Bank Workers 317
Sam T. Gibson, Madge L. Crouch and Leonard L. Taylor
DESIGNATED DISCUSSION, *Stokes*; GENERAL DISCUSSION, *Mosley, Smetana* 323

IV. PREVENTION — CHEMICAL AND PHYSICAL AGENTS

Moderator, WILLIAM S. TILLET

27. Ultraviolet Radiation 327
Joseph Stokes, Jr.
28. Inactivation of the Hepatitis Virus by High Energy Electrons 333
John G. Trump and Kenneth A. Wright
29. Virus Inactivation with Gamma Radiation from Cobalt⁶⁰ 343
Russell T. Jordan and Lloyd L. Kempe
30. The Combined Effect of Thermal and Ionizing Radiation on Viruses 355
Ernest C. Pollard
GENERAL DISCUSSION, *Brauer, Pollard, Ward, Stokes, Paul, Trump, Jordan, Francis* 367
31. Chemical Sterilization of Whole Blood and Plasma with Beta-Propiolactone 371
Gerald A. LoGrippe and Clarence E. Rupe
32. The Toxicology of Beta-Propiolactone 387
Annetta R. Kelly, Frank W. Hartman and Clarence E. Rupe
33. Combined Beta-Propiolactone and Ultraviolet Irradiation for Plasma Sterilization 407
Frank W. Hartman and Gerald A. LoGrippe
DESIGNATED DISCUSSION, *Dalldorf*; GENERAL DISCUSSION, *Taylor, Mack, LoGrippe* 417

V. DIFFERENTIAL DIAGNOSIS — LABORATORY METHODS

Moderator, HENRY L. BOCKUS

34. Tentative Classification of Some Current Types of Liver Damage on the Basis of Electrophoretic Serum Analysis 423
G. Viollier
35. The Use of Flocculation Tests in the Differential Diagnosis of Hepatitis 439
Noel F. MacLagan

36. The Clinical Significance of Alterations in Serum Transaminases in Hepatitis 447
Felix Wróblewski
37. Bile Pigments of Serum in Disease of Liver 467
Jesse L. Bollman
38. The Diagnosis of Hepatitis by Needle Biopsy 475
Edward A. Gall
- DESIGNATED DISCUSSION, *Ducci* 499

PANEL DISCUSSION ON DIFFERENTIAL DIAGNOSIS

Moderator, *HENRY L. BOCKUS* 504

Sheila Sherlock, Charles S. Davidson, Charles Johnston, Victor M. Sborov, John R. Neefe, Leon Schiff, Héctor Ducci, G. A. Martini, Felix Wróblewski

VI. CLINICAL MANAGEMENT

Moderator, *CECIL WATSON*

39. Management of Hepatitis 525
Roderick Murray
40. Management of Coma 533
Charles S. Davidson, W. H. J. Summerskill and Stanley J. Wolfe
41. Treatment of Acute Hepatitis with Cortisone 539
Héctor Ducci, Ricardo Katz and Hernán Alessandri
- GENERAL DISCUSSION, *Sherlock, Faloona, Rappaport, Bjørneboe, Chalmers, Evans* 551

PANEL DISCUSSION ON THERAPY, COURSE AND PROGNOSIS

Moderator, *CECIL WATSON* 559

Sheila Sherlock, John R. Neefe, Hans Popper, Héctor Ducci, T. C. Chalmers, Henry G. Kunkel, M. Bjørneboe

Index 587

P A R T I

Anatomy, Physiology and Pathology
of the Liver

Moderator: CHARLES H. BEST, M.D. (*Toronto, Canada*)

I

*The Structural and Functional Acinar Unit of the Liver — Some Histopathological Considerations**

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(Toronto, Canada)

The liver is perhaps the organ most hailed for its various functions, but, amazingly, the least understood as to the microscopic structure of its units that carry out these multiple functions. In recent times there even has been a tendency to present this organ as an indivisible mass. This can only mean failing to see the trees for the woods. On the other hand one would be mistaken in assuming that the delimitation of structural and functional units in the liver results in substitution of a mosaic for organic unity. May I remind you that in other organs, the understanding of their function has been advanced by the description of their structural and functional units. Renal physiology, for example, is based on the structural concept of the nephron, which is also a functional unit.

I will attempt to present the structural units of the liver with respect to their circulatory, secretory and metabolic function, in the hope that future research may succeed in measuring their circulatory and metabolic activity. Also the pathology of such units will be sketched.

The structural and functional unit of the liver has been called by us liver acinus, a name given already by Malpighi (1666)¹ and later by Mascagni² to the smallest amount of hepatic parenchyma attached to the smallest branches of afferent vessels and bile ducts isolated by teasing the tissue. In our microscopic study we too have adopted the terminal branches of portal vein, hepatic artery and bile duct branching out from the smallest triangular portal field as the axis around which are organized small microscopic clumps of hepatic tissue, *irregular* in size and shape. This trio of associated channels presents the dynamic line along which nutrients and oxygen are moved into, and the secretory product — the bile — is moved out from, the parenchymal clump. The existence of such units has been proved³ by simultaneous injection of two differently

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