BOOK REVIEW

BLOOD PLATELETS: STRUCTURE, FORMATION AND FUNCTION. Series Haematologia
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Williams and Wilkins Company                Pages: 181
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Series Haematologia is a journal edited in Denmark and published simultaneously in
that country and the United States. Each issue features comprehensive articles on a given
subject of hematologic interest. The volume here under discussion contains five papers on
blood platelets by well-known authorities in the field.

The first of these is a detailed review of blood platelet ultrastructure by Dr. Torstein
Hovig. Dr. Hovig's contributions to platelet physiology in recent years have been of great
significance. An exceptionally well-illustrated survey of the ultrastructure of normal platelets
is followed by a section on electron microscopy of platelets in hemostasis, thrombosis,
coagulation, and in response to aggregating agents. Interesting correlations between struc-
ture and function are presented throughout the text, and the bibliography is extensive.

The second article, by Dr. Shirley Ebbe, contains an analysis of current theories of
megakaryocyte formation and platelet turnover. Megakaryocytes have now been studied by a
number of techniques—including electron microscopy, labeling with tritiated thymidine, ob-
servations on stem cell behavior following bone marrow transplantation, and measurements
of DNA on a microscale. All of these have provided new and interesting information on
the production and maturation of megakaryocytes. A working model of megakaryocytosis is presented, and the characteristics of the stem cell pool, the committed stem cell,
the polyploid cell, and actual platelet production are discussed. The latest information re-
garding platelet survival time, platelet deposits, and the regulation of platelet concentration is
also presented. Finally, possible clinical implications of this recent knowledge are elucidated.
For example, the myeloproliferative syndromes may represent a proliferation of the pleuri-
potential stem cell compartment. On the other hand, aplastic anemia may result from
an underproduction of hematopoietic cells based on a stem cell defect. The bibliography is
up-to-date and critically selective.

A detailed discussion of platelet adhesiveness by Dr. Arvid Hellem ensues. Dr. Hellem's
early contributions to the study of platelet adhesiveness and aggregation literally opened
a new area of research: he and his colleagues were able to show that adenosine di-
phosphate (ADP) is the principal substance involved in platelet adhesion-aggregation
reactions. The first part of the present article surveys the various methods currently em-
ployed in the study of platelet adhesiveness. The literature on the uses and results of
these tests is then reviewed. There have been numerous studies on the mechanism of
platelet adhesion and aggregation reactions. A large variety of drugs have been tested
in the search for an inhibitor of platelet aggregation; and such tests have also been used
to study patients with hemorrhagic and thrombo-embolic disorders. It is pointed out that our
general knowledge of platelet adhesion-aggregation reactions has vastly increased during the
past decade. While it appears that there is an increase in platelet adhesiveness in disorders
associated with thrombo-embolic complications, the search for an ideal therapeutic agent to
reduce platelet adhesiveness and possibly the tendency to thrombosis must continue. An
excellent bibliography follows this chapter.

The next contribution is a presentation of the screen filtration pressure method in
platelet research by Dr. Roy L. Swank. This interesting technic appears to be an alter-
native method for measuring platelet adhesiveness and aggregation. It is sensitive to such
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drugs as ADP and serotonin but probably offers no particular advantages over standard methods currently employed.

The final article contains a discussion of platelet phagocytosis by Drs. Mustard and Packham. Some years ago Dr. Mustard's group showed that platelets in platelet-rich plasma are capable of engulfing polystyrene particles. They actually demonstrated the presence of particles within platelets by electron microscopy. In addition, they have shown that during the phagocytic process platelets release ADP and other intracellular components. This process is further enhanced if the particles are first coated with gamma globulin; under these conditions the release reaction is even more prominent and platelet degranulation occurs. Furthermore, the platelets release a factor which increases blood vessel permeability. The recent finding that platelets contribute to the rejection of kidney transplants is also discussed. Drugs which inhibit the response of platelets to antigen-antibody complexes such as cortisone and phenylbutazone appear to be capable of reversing the rejection process.

In conclusion, this volume of Series Haematologica is a comprehensive and informative summary of recent knowledge in the field of platelet physiology and biochemistry. It is highly recommended to all those seeking such information.—Aaron J. Marcus, M.D.

BOOKS RECEIVED FOR REVIEW

1. VASCULAR DISEASES by M.J. Tsapogas, V.V. Kakkar and E.N. Gleave
   Available from: Charles C Thomas
   301-327 East Lawrence Ave.
   Springfield, Illinois
   Pages: 178
   Price: $8.50

2. SURGERY OF ACQUIRED VASCULAR DISORDERS by Benjamin B. Jackson
   Available from: Charles C Thomas
   301-327 East Lawrence Ave.
   Springfield, Illinois
   Pages: 479
   Price: $22.50

3. SELECTIVE ARTERIAL CATHETERIZATION, DIAGNOSTIC THERAPEUTIC AND INVESTIGATIVE
   by Howard Richard Bierman
   Available from: Charles C Thomas
   301-327 East Lawrence Ave.
   Springfield, Illinois
   Pages: 602
   Price: $15.75

4. REPLICATION OF DNA IN MICRO-ORGANISMS (Vol. 33)
   Available from: The Cold Spring Harbor Laboratory
   of Quantitative Biology
   Cold Spring Harbor, New York
   Pages: 884
   Price: $20.00

5. MACROPHAGES AND IMMUNITY by D. S. Nelson
   Available from: John Wiley & Sons, Inc.
   605 Third Avenue
   New York, New York 10016
   Pages: 333
   Price: $19.50

6. DIRECT BLOOD TRANSFUSION by John A. McLean
   Available from: Australasian Medical Publishing Co. Ltd.
   Sydney N.S.W. 2037, Australia
   Pages: 61
   Price: None Quoted