

# BOOK REVIEW

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## IMMUNE HEMOLYTIC ANEMIAS, 2nd edition

Lawrence D. Petz and George Garratty. Philadelphia: Churchill Livingstone; 2004. 591 pages. Hardcover \$125. ISBN: 00-0-443-085595

For blood bankers of a certain age, reading the first edition of *Acquired Hemolytic Anemias*, which was published in 1980 and fondly referred to as "Petz and Garratty," was a transforming experience. For example, particular pages and diagrams are still burned into the memory of this blood banker. Whether the second edition of this textbook, now more broadly titled as *Immune Hemolytic Anemias*, will have a similarly dramatic effect on the current and future generations of immunohematologists is not yet clear; nonetheless, I am confident that its influence will be profound.

The second edition was expanded in scope to encompass all types of immune-mediated red blood cell (RBC) destruction. After an introductory chapter describing the history of this field, the authors present chapters related to the clinical and laboratory diagnosis, classification, pathophysiology, and treatment of immune-mediated hemolysis caused by autoantibodies (drug-induced and otherwise) and alloantibodies. There are also chapters devoted to the serologic identification and antigen specificities of these antibodies. Finally, the authors provide chapters that thoroughly review these topics in specialized settings, such as in hematopoietic stem cell transplantation, solid-organ transplantation, and hemolytic disease of the newborn and fetus. Thus, this exhaustive overview of virtually every medical situation characterized by immune-mediated RBC destruction, from common disorders to rare entities, is highly relevant for all practitioners of transfusion medicine.

The second edition, like the first, was entirely written by these two authors, a rarity nowadays because of the immense effort required. Because it is not a compilation of various chapters by multiple authors, the text demonstrates a continuity in depth, breadth, style, and interpretation. Drs. Petz and Garratty are also eminently qualified to undertake such a task, having been active in this field for many years as clinicians and researchers, providing definitive experimental and clinical contributions and discoveries. In addition, they know (and knew) all of the relevant investigators and, thus, have additional insights and knowledge beyond that existing in the published literature. Finally, they seemingly have read, reviewed, and assimilated everything written on this topic from the beginning of time to the present! For example, every chapter and virtually every statement is well referenced; Chapter 3 alone has 774 references. This in-depth expo-

sure allowed them to comprehensively review and discuss each topic.

Of particular usefulness are sections containing descriptions of practical serologic methods, which are found in Chapter 6 (i.e., "Serological Investigation of Autoimmune Hemolytic Anemia") and Chapter 8 (i.e., "Drug-Induced Hemolytic Anemia"); these detailed recipes are very helpful, providing important advice from acknowledged experts in the field. In addition, given the length and complexity of the text, a detailed index is critically important; I am happy to say that their index is comprehensive and eminently usable. The summary describing a management algorithm for patients with autoimmune hemolytic anemia (AIHA) at the end of Chapter 11 (pp. 447-448) is also very good, as is the algorithm for selecting blood for transfusing patients with warm AIHA (Chapter 10, p. 387). Given their stature, it is also refreshing to be provided with authoritative opinions on somewhat controversial topics; for example, the discussions in Chapter 10 regarding whether it makes sense to transfuse "least incompatible" units to patients with AIHA, being proactive in the transfusion of severely anemic AIHA patients, and whether washed RBC are required. In addition, their suggestions in Chapter 12 for how to write a consult and how to transfuse patients who have received an ABO-incompatible bone marrow transplant are very useful.

Despite my enthusiasm for this book, there are some areas where it could be improved. For example, it is unfortunate that color was not used for at least some of the figures; perhaps this was required to keep costs low. For example, the photographs of blood smear morphology in Chapter 2 would have significantly benefited from being in color. In addition, Fig. 3-4 on page 77, which displays both the release of free hemoglobin seen with Donath-Landsteiner test and the morphology of erythrophagocytosis, would have been more striking and informative in color. Along these lines, the use of arrows to indicate specific cell types in the photographs of smears would have also been helpful. The original magnification used to take these pictures should also have been provided; alternatively, a micrometer ruler would have helped. For example, Figs. 2-16, 2-17, and 2-18 (pp. 56-57) were all taken with differing initial and/or final magnifications. The uninitiated reader could become confused when viewing these figures.

As another example, the discussion of the serologic and biochemical specificities of autoantibodies in Chapter 7 would have benefited from the inclusion of additional figures. Thus, given the profusion of recent reports elucidating the biochemistry and molecular biology of the Rh system, a schematic diagram of the RhD and

RhCE proteins would have had significant educational value. Similarly, given the complexity of their carbohydrate structures, a picture or table providing the biochemical structures of the relevant antigens in the ABH, Ii, and P blood group system would have been helpful.

These authors frequently use a compendium approach of listing summaries of many articles, each of which are presented in a few sentences or paragraphs. Although this approach has its strengths, it also has its weaknesses. For example, the discussion on page 248 of the proteolytic fragments of glycophorin A uses an outdated terminology that was used in the original article. The interpretations of this information would have been clearer by using more modern terminology, which could also have been accompanied by a picture or diagram. In addition, the compendium approach can make long sections of the book difficult to read. It is almost as if they want to tell us everything that they know and have read, even if the articles are outdated and the clinical and therapeutic methods are no longer used. Their approach, however, does have the strength of providing a large amount of data in one place, relieving the reader of the necessity of obtaining and reading much of the primary literature and giving the reader a feel for the various clinical scenarios, particularly for rare disorders where the reader may not have personal experience.

Certain parts of the book could also have been stronger in describing the pathophysiologic mechanisms underlying the clinical scenarios. This is particularly true in Chapter 4 ("Mechanisms of Immune Hemolysis"), which could have been improved by including a discussion of the abundant and outstanding recent work elucidating the signal transduction mechanisms involved in Fc receptor- and CR3-mediated phagocytosis and subsequent cytokine secretion. In addition, although they carefully review the older studies of M. Frank and

coworkers with a guinea pig model to study immune-mediated RBC clearance, the outstanding recent work of Izui's group, Ravetch's group, Honjo's group, and others, which exploit the availability of knock-out and transgenic mice to study mouse models of AIHA, was not mentioned. Similarly, the discussion of thrombotic thrombocytopenic purpura in Chapter 12 does not include the recent findings regarding the pathophysiology of this enigmatic disorder.

Finally, reviewers always identify multiple quibbles when carefully reading a text, most of which are not worth discussing. Nonetheless, I cannot resist providing two examples. Thus, although typos are scattered throughout, they are not frequent. However, as a glyco biologist, my favorite example is "fructose" instead of "fucose" on page 247. In addition, one of the weaknesses of not using a multiauthored approach is the lack of intimate expertise on every topic. For example, a glyco biologist reading their statement on page 251 that "Glycophorin A carries Sa determinants. Like Pr2, Sa antigens are gangliosides . . ." realizes that this is not strictly true. Yet, these quibbles are relatively few and far between and I believe that the benefits of the "single-authored" approach significantly outweigh the drawbacks.

In conclusion, the new "Petz and Garratty" is a tour de force that should be on the bookshelf of every immunohematologist and I predict that well-thumbed copies will be present in every self-respecting serologic reference laboratory.

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