BOOK REVIEW


A good basic understanding of cytokines and growth factors is essential for anyone keeping current in transfusion medicine. Published by the new AABB Press, this hardcover book is in a 6″ × 9″ format with clear typography and an adequate index. The book was designed to be a readable and general introduction to the topic of cytokines. It is entirely successful toward this aim.

The editors assembled a knowledgeable group of authors. Although the authors put the material squarely in the context of transfusion medicine, they come from diverse backgrounds and draw on a knowledge base that extends beyond the bounds of traditional transfusion issues. The talent of the authors and the care given to each chapter are the strongest aspects of this work. The book contains eight short chapters and divides itself naturally into two equal halves.

The first chapter, by Professor Steven L. Kunkel, is an informative but short overview of the topic of cytokine biology and the systemic inflammatory response. This is followed by two chapters that cover the issue of cytokine accumulation during blood storage and the potential role for cytokines in the pathogenesis of febrile nonhemolytic transfusion reactions. Drs. Gary Stack and David Berkowicz review the factors that lead to cytokine accumulation and the evidence that prestorage leukoreduction will prevent such accumulation. Drs. Terrence L. Geiger and Edward L. Snyder then review in vitro evidence for the removal of some inflammatory mediators by filter material. Here they draw on primary research conducted at their laboratory. This is followed by an authoritative review of the role of cytokines in hemolytic reactions by Dr. Robertson D. Davenport, who has led the best research efforts in this area. His chapter puts a large amount of relevant experimental work in a readable review.

The second half of the book consists of four chapters that address the topic of growth factors rather than cytokines. Dr. Marian Petrides admirably covers a variety of topics related to erythropoietin, including its use in renal disease, HIV-infected patients, cancer and myelodysplasia, anemia of prematurity, and the anemia of the perioperative period. Drs. David Stroncek and Susan Leitman then provide a thorough review of the use of G-CSF for mobilization of granulocytes or hematopoietic progenitors. The clear text will be most welcome by anyone unfamiliar with this area and who wishes to understand the process of stem cell mobilization and peripheral blood harvesting. A chapter on cytokines that affect megakaryocyte growth and platelet production as well as thrombopoietin follows. This chapter updates the reader on the current status of clinical trials using tPO. Finally, Dr. Stephen Emerson gives an account of the development of an early bioreactor for ex vivo expansion of hematopoietic progenitors. The chapter emphasizes the importance of flow-based systems and the role of stromal elements in the growth and expansion of stem cells.

Most readers will find this work to be readable and enjoyable. There were some obvious breakdowns in editing, and the two chapters on cytokine accumulation during blood storage were annoyingly redundant in several places. The authors are understandably enthusiastic about the extent to which cytokine accumulation may account for observed clinical febrile reactions to transfusion, but at times the text tends to leap from in vitro observations to unproven in vivo conclusions. The monograph fails to cover the role of cytokines in the immunomodulatory effect of transfusion, in transfusion-related acute lung injury, in transfusion-associated acute graft-versus-host disease, or in the mechanism of action of intravenous immunoglobulin. Nevertheless, this little primer is a worthy introduction to the topics of both cytokines and growth factors as applied to issues in transfusion medicine. I recommend it highly to anyone interested in a superb introduction to this topic.

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