Review: Red Cell Transfusion, A Practical Guide.

In teaching the elements of blood banking and transfusion medicine to medical professionals who have had limited exposure to these concepts, I find that I can accelerate past the basics too quickly for them. One can easily forget that the concepts and details of the field are foreign phenomena to those outside our discipline. As a result, one must take care to ensure that the appropriate groundwork is laid and that the tenets are explained fully. Students must have an understanding of transplantation immunology and infectious diseases to understand what may seem to be a simple concept: leukoreduction. It’s even important to remember that to a newcomer in our field, how we get from blood flowing in a vein to red cells (and not usually “packed” cells) in a bag is not intuitive.

Thankfully, the editors and authors of Red Cell Transfusion, A Practical Guide have recognized that although our field has evolved and its practice involves many complicated nuances, it’s important to start the explanation at the beginning and explain the background material fully. This text seeks to explain blood banking and clinical transfusion medicine from soup (i.e., donor recruitment) to nuts (i.e., transfusion support in a variety of settings). The strength of the text lies in each author’s careful exposition of basic principles before launching off into their application. As a result, each chapter begins with a thorough exploration of background concepts before more-detailed explanations are included.

This text is, in this reviewer’s opinion, not intended for budding SBBs or transfusion medicine fellows. For people with some background in this field, the explanations may be a bit too simplistic and the applications might not be sufficient in technical detail for the book to be a useful reference. However, the content is perfectly designed for a medical technology student, nursing student, or other healthcare professional initially approaching blood banking and transfusion medicine. The simplicity and clarity of the explanations will be a tantalizing allure that will carry these readers further into this field than they ever thought they wanted to go and will probably reward them at the end of each well-written chapter with more knowledge than they ever thought they could garner.

The organization of the text will also make it useful for those seeking a quick explanation of another part of the field with which they are not familiar. The text is segmented into an outline format that is easily comprehensible; this allows a reader to find the desired section rapidly. This may allow a donor recruiter to get more information about why “fresh” O-negative red cells are always in demand for neonatal exchange transfusion or help a medical technologist understand why certain forms of autologous transfusion aren’t helpful in certain circumstances. The book will not replace the standard reference tomes found on a specialist’s book shelf, but it will serve an important role as an approachable and comprehensible source of information.

These remarks should not be taken to suggest that the treatment of material is in any way superficial. The chapter that provides an overview of immunology is particularly thorough in its exploration of the interactions of the arms of the immune system and how antigen processing via the HLA system directly affects transfusion medicine. This kind of summarized information makes the details of a complex and burgeoning field more comprehensible and will allow readers to gain a better understanding of why, for example, leukoreduction is beneficial for some situations.

The majority of the book is devoted to clinical topics, and the information provided in these chapters is also very well done. The detail is insufficient to train a pathology resident in transfusion medicine, but it may serve as a quick primer or allow a medical technologist to understand why certain policies are applied. The technical details of procedures to prepare units for certain uses or how to manage patients experiencing an anaphylactic reaction, for example, must be sought elsewhere. This restriction of scope is more a benefit than a detriment, however, as it has allowed the authors to target the material for their audience and avoid overwhelming the basic concepts with details that are not needed.

In accordance with commonly used disclosure statements, I should acknowledge that the editor of this journal has allowed me to retain a copy of the text in exchange for providing this review. Had she not done so, however, I certainly would have purchased it!
I enjoyed reading it and look forward to using it to help acquaint others with the exciting and complex field of red cell transfusion.

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COMMUNICATIONS

Letters to the Editors

Yes, screening based on ethnicity is worthwhile

Screening for rare donors is labor intensive. It is well known that some rare types are only found in specific ethnic groups. Therefore, time and reagents can be conserved and probabilities of finding compatible donors can be increased if screening is done based on ethnicity.

In January 1997, the American Red Cross Blood Services Badger-Hawkeye Region began a program of antigen testing for rare donors based on ethnicity. Collection staff at the bloodmobiles explain this program to the registration volunteers. All donors are given written information at registration that explains why some types of rare donors are found only in certain ethnic groups. The information also instructs them how to voluntarily fill in the appropriate section of the Blood Donor Record (BDR) that pertains to ethnicity.

In a 1-year period, 307 Native Americans, 154 Asians, 144 Hispanics, and 113 African Americans were screened. We were searching for Di(b–), Js(b–), Jk:–3, Ge:–2,–3, U–, and hrB– donors. Due to the availability of anti-Warr, we also were looking for Warr-positive donors in the Native American population.

Group A and Group O Native American, Hispanic, and Asian donors were screened with anti-DiA. To date, 29 Di(a+b+) individuals have been found: 10 Native Americans (~ 3%), 10 Hispanics (~ 7%), and 9 Asians (~ 6%). In addition, three Native Americans were found who are Di(a+b−). None of these three donors had completed the ethnic section of the BDR but were found when all donors from blood drives held at Native American casinos were screened. Information regarding rare donor screening based on ethnic group had been posted at the sites prior to these bloodmobiles.

Hispanics and Asians who are Group O or Group B were screened with anti-Jk:3. A total of 172 have been tested. No Jk:–3 individuals have been found to date.

One hundred sixty-four Native Americans have been screened with Group AB anti-Warr and anti-Ge:2,3. No Warr positive or Ge:–2,–3 donors have been found.

African Americans were screened with anti-Fya, anti-Fyb, anti-U, anti-JsA, and anti-C. Group O donors who were Fy(a−b+) were further typed for C, E, c, K, JkA, JkB, S, and s. This was intended to identify donors who fit the American Red Cross Rare Donor Registry criteria: group A or O; R1, R2, Ro, or r; K:–1; and negative for JkA or JkB, Fya or Fyb, or S or s. All Group A and Group O donors who were positive for C were screened with anti-hrB. A total of 113 donors have been screened following this protocol. Eleven donors fit the protocol for multiple antigen negative donors. Four donors fitting the protocol for being negative for a high-frequency antigen also were found. One donor is U negative, two donors are Js(b−), and one is hrB-negative.

To summarize, over 1,830 antigen typings have been performed using the above protocol. In this 1-year period, 605 donors were screened based on ethnic group and 15 donors (~ 2.5%) were found who meet the American Red Cross rare donor criteria. An additional 16 donors (~ 2.6%) are appropriately antigen negative for an area sickle cell patient who previously had to wait for transfusion until units could be obtained from a nearby blood center.

Proper instruction regarding the importance of voluntary completion of the appropriate area on the donor record is crucial to an effective ethnic screening program. Collection staff and registration volunteers are a key element of this screening. Although rare donor screening is a time-consuming project, the addition of these donors to the local and national rare donor registries and the availability of these types of blood in the region has made it very worthwhile.

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