

- LW: Efficacy of autologous fresh whole blood or platelet-rich plasma in adult cardiac surgery. *Transfusion* 1995; 35:627-34
3. Mohr R, Martinowitz U, Lavee J, Amroch D, Ramot B, Goor DA: The hemostatic effect of transfusing fresh whole blood *versus* platelet concentrates after cardiac operations. *J Thorac Cardiovasc Surg* 1988; 96:530-4
  4. Manno CS, Hedberg KW, Kim HC, Bunin GR, Nicolson S, Jobses D, Schwartz E, Norwood WI: Comparison of the hemostatic effects of fresh whole blood, stored whole blood, and components after open heart surgery in children. *Blood* 1991; 77:930-6
  5. Lavee J, Martinowitz U, Mohr R, Goor DA, Golan M, Langsam J, Malik Z, Savion N: The effect of transfusion of fresh whole blood *versus* platelet concentrates after cardiac operations. A scanning electron microscope study of platelet aggregation on extracellular matrix. *J Thorac Cardiovasc Surg* 1989; 97:204-12

(Accepted for publication June 18, 2012.)

#### In Reply:

I thank Drs. Pitkin and Rice for their interest in my editorial, "Reconstructing Deconstructed Blood for Trauma,"<sup>1</sup> and the issue of the utility of whole blood. Although my editorial focused on trauma, I agree with Drs. Pitkin and Rice that the potential for the appropriate utilization of whole blood applies to other clinical circumstances of substantial blood volume replacement, as well.

When citing the limited supportive clinical trial literature,<sup>2,3</sup> I was careful to indicate that those studies addressed adults. I did not cite the study performed in pediatric cardiac surgery patients<sup>4</sup> because it was not fully blinded and only partially randomized, thus making interpretation of the results quite problematic. In addition, the analysis in that publication of a subpopulation (whose removal from the overall analysis reduced the results to statistical nonsignificance in the remaining population: those younger than 2 yr with surgery of lesser difficulty, and all those studied who were older than 2 yr) appears to have been *post hoc*, thus providing an interesting hypothesis, but not proof.

As I wrote,<sup>1</sup> determination of platelet efficacy is not straightforward and requires careful analysis of source, and storage conditions (time, temperature, and medium), as well as the timing and method of assessment. Platelet quantity and quality are critical components of coagulation, making transfusion of viable, functional platelets an important consideration for the use of whole blood.

The author has a relationship with or consults for the following companies and organizations that have an interest in erythrocyte, plasma, or whole blood transfusion: US Food and Drug Administration (Rockville, Maryland), US National Heart, Lung, and Blood Institute/National Institutes of Health (Bethesda, Maryland), US Department of Defense (Washington, D.C.), Caridian BCT (Lake-wood, Colorado), CSL Behring (King of Prussia, Pennsylvania), Entegriion (Research Triangle, North Carolina), OPK Biotech (Cambridge, Massachusetts), and Sangart Inc. (San Diego, California). The author was project/corporate vice president and executive scientific advisor at Novo Nordisk A/S (Bagsvaerd, Denmark) 2005-2007.

Whole blood has potential indications other than that of trauma, although current studies and greatest interest are focused on trauma. The U.S. military continues to use whole blood for some combat injuries, but the road to the return for its use in civilian practice will require a concerted effort by interested clinicians, such as Drs. Pitkin and Rice.

**Richard B. Weiskopf, M.D.**, University of California, San Francisco, San Francisco, California. rbw@itsa.ucsf.edu

#### References

1. Weiskopf RB: Reconstructing deconstructed blood for trauma. *ANESTHESIOLOGY* 2012; 116:518-21
2. Triulzi DJ, Gilmor GD, Ness PM, Baumgartner WA, Schultheis LW: Efficacy of autologous fresh whole blood or platelet-rich plasma in adult cardiac surgery. *Transfusion* 1995; 35:627-34
3. Mohr R, Martinowitz U, Lavee J, Amroch D, Ramot B, Goor DA: The hemostatic effect of transfusing fresh whole blood *versus* platelet concentrates after cardiac operations. *J Thorac Cardiovasc Surg* 1988; 96:530-4
4. Manno CS, Hedberg KW, Kim HC, Bunin GR, Nicolson S, Jobses D, Schwartz E, Norwood WI: Comparison of the hemostatic effects of fresh whole blood, stored whole blood, and components after open heart surgery in children. *Blood* 1991; 77:930-6

(Accepted for publication June 18, 2012.)

## 'Evidence' for Practice Guidelines for Central Venous Access?

#### To the Editor:

Although we applaud the American Society of Anesthesiologists (ASA) in the development of evidence-based guidelines and the effort and expertise of esteemed leaders of our field in their preparation, we are concerned with several aspects of the guidance section in the recently published practice guidelines for central venous access.<sup>1</sup>

The prologue to the guidelines emphasize their application to "anesthesiologists or health care professionals under the direction/supervision of anesthesiologists" (in the Focus section) and intent "for use by anesthesiologists and individuals under the supervision of an anesthesiologist" (in the Application section). As such, the dearth of level I evidence presented by anesthesiologists is disconcerting.

For adults, only one of the three presented studies for static ultrasound use for internal jugular access, and only one of the eight presented for real-time ultrasound use, are from anesthesiologists, incongruent to the preceding admonition in the preamble. Examination of the referenced adult studies and their subsequent meta-analysis is disturbing for their heterogeneity, which does not necessarily reflect the practice of average ASA members, and is apparent as such in the ASA member survey responses.

The majority of the referenced studies (all fewer than 100 subjects) include hemodialysis and central line access by both nephrologists and interventional radiologists and multiple studies by nonanesthesia critical care physicians, including