What Is the Incidence of Perioperative Transfusion-related Acute Lung Injury?

To the Editor:—We appreciated the article by Florell et al. describing a case of transfusion-related acute lung injury (TRALI) that occurred intraoperatively. They note that only three cases of TRALI have been reported in the anesthesiology literature over the past decade. They also suggest that TRALI may be under-recognized, albeit still rare.

We agree that TRALI as an etiologic factor for intraoperative pulmonary edema is under-reported. Using multiple quality assurance databases, we found five cases of TRALI as the implicated cause among the 20 cases of acute fulminant pulmonary edema that occurred during or within 2 postoperative hours of 139,245 consecutive general anesthetics from 1985 to 1988. The diagnoses of these cases were confirmed both by ruling out alternative causes such as myocardial infarction, pulmonary embolism, and hypervolemia and by detecting antibodies in donor plasma that were reactive with the patient's granulocytes in an indirect immunofluorescence test. Confirmatory tests were performed on samples of donor plasma and a panel of normal granulocytes. We have identified three additional cases of perioperative TRALI and fulminant pulmonary edema during 1989-1993. Taken together, these eight cases occurred among 342,996 patients undergoing general anesthesia for noncardiac surgical procedures (1:42,875). Of these 342,996 patients, 18,864 (5%) received one or more blood products. Therefore, our rate of TRALI implicated as the cause of fulminant pulmonary edema that occurs in patients who receive general anesthesia and one or more blood products has been 1:2,358. Parenthetically, none of these eight patients with TRALI died or required mechanical ventilatory support for more than 24 h. The incidence of TRALI presenting with less dramatic symptoms (e.g., dyspnea, hypoxemia, or hypoventilation) is likely higher.

The laboratory investigation of TRALI is considered by our Transfusion Medicine division if the clinician caring for the patient reports a complication associated with a blood transfusion. Our index of suspicion for TRALI is high and is related to our institution's early work with this condition. TRALI should be considered in any transfused patient with pulmonary edema or other respiratory distress in whom there are no other obvious etiologic factors. In general, treatment is supportive, and most patients experience marked improvement within 24 h. The transfusion service should be notified of any potential case of TRALI to allow testing for donor antibodies that are reactive to recipient granulocytes. If a donor is found to have these antibodies, at our institution the individual may still donate blood, but the plasma is not transfused and the erythrocytes are washed to remove most plasma.

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References


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