[NM-317] Intraoperative Diagnosis and Management of Transfusion-Related Acute Lung Injury (TRALI): A Case Report

Lynch L, Saraiya N, Kazim R
Morgan Stanley Children's Hospital of New York-Presbyterian, Columbia University, New York, Ny , New York , NY, USA

INTRODUCTION: Transfusion-related acute lung injury (TRALI) is a catastrophic complication of blood transfusion and was responsible for 43% of transfusion-related deaths from 2007-2011. It is diagnosed when acute hypoxemia occurs during or within six hours of transfusion with bilateral infiltrates on chest x-ray, a PaO&sub2;/FiO&sub2;<300 and/or SpO&sub2;<90% on room air, and without evidence of circulatory overload, pre-existing acute lung injury, or alternative etiologies. We present a patient who received a platelet infusion in preparation for splenectomy and presented to the OR with evolving TRALI.
CASE REPORT: A 5 year-old 14.4kg female with likely relapsed T cell lymphoma in the setting of hepatosplenomegaly and severe thrombocytopenia presented for bronchoscopy, bone marrow biopsy and splenectomy. Upon arrival to the OR, she had completed a platelet transfusion of 2.5mL/kg/hr that totaled 1020mL of platelets over 17 hours and brought her count to 87k/µL. She was also finishing a transfusion of 190mL PRBCs due to a hemoglobin value of 7.8 g/dL. Her vital signs were stable on room air and we proceeded to induce general anesthesia through her central venous line. She desaturated quickly during the brief time it took to secure the ETT but SpO&sub2; rebounded back to 100%. A right radial arterial line was placed and baseline blood gas and labs were sent. A slow infusion of platelets was begun and the bronchoscopy to evaluate a small lesion proceeded uneventfully. During the bone marrow biopsy, the patient began to have frequent, severe episodes of hypoxia that were progressively more difficult to treat. Hand ventilation, increasing PEEP and PIP were required. The baseline blood gas showed a PaO&sub2;/FiO&sub2; ratio <100. The platelet transfusion was stopped. Utilizing the resources in the OR, a CXR was taken under fluoroscopy and a transthoracic echocardiogram was performed. The patient had bilateral fluffy infiltrates and there was no evidence of circulatory overload or cardiac dysfunction on echocardiogram. We aborted the splenectomy and brought her to the PICU intubated with a PEEP valve. She remained in critical condition and ultimately died after her parents withdrew care.
DISCUSSION: TRALI can occur after any type of blood product transfusion and is the leading cause of transfusion-related deaths, though the course can be self-limited and resolve in 2-3 days. The differential diagnosis for TRALI includes circulatory overload and pulmonary embolism. Obtaining an urgent CXR and echocardiogram in the OR confirmed TRALI as the diagnosis in our case and we provided appropriate supportive care with transition to the PICU. We recommend maintaining a high index of suspicion and obtaining a baseline ABG if possible prior to an invasive procedure. A conservative transfusion strategy remains the best method to preventing TRALI.
REFERENCES
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