

## Case Study – Transfusion Associated Circulatory Oedema

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A transfusion reaction was reported to the Blood Service as a case of suspected Transfusion – Related Acute Lung Injury (TRALI).

The patient was a 75 year old male patient undergoing chemotherapy with Epirubicin (anthracycline), Cisplatin and 5-fluorouracil) and radiotherapy for metastatic gastric carcinoma and was receiving Human Leucocyte Antigens (HLA) compatible platelets for management of platelet refractoriness due to HLA alloimmunisation. He was a long term smoker but had no history of cardiac or respiratory disease prior to chemotherapy. The chemotherapy was subsequently ceased due to aggressive disease progression.

A unit of apheresis platelets was transfused for chemotherapy related thrombocytopenia. One hour after completion of the transfusion, whilst in the radiology unit for an unrelated procedure, the patient developed acute onset respiratory distress resulting in a Medical Emergency Team (MET) Call,

He was febrile prior to transfusion and noted to have peripheral oedema. A gated scan of the heart prior to the commencement of chemotherapy had shown a normal ejection fraction of 73% but had not been repeated following the recent course of chemotherapy.

At the time of the reaction, he was noted to be febrile, with dyspnoea and clinical evidence of pulmonary oedema. His oxygen saturation was 84% on room air. His Chest X-ray was reported to show pulmonary oedema. Brain Natriuretic Peptide (BNP) was not measured. A history of other intravenous fluids was not well documented.

He was given oxygen via nasal prongs and diuretic therapy with good response and clinical improvement.

A diagnosis of Transfusion-Associated Circulatory Oedema (TACO) was made.

The patient had a recent history of hospital acquired pneumonia and was still receiving antibiotic therapy. A Computed Tomography (CT) pulmonary angiogram post-transfusion showed carcinomatous lymphangitis. Although the fluid balance was not well documented, the patient was receiving intravenous saline (at least 20mL/hr) for hydration and administration of antibiotics and had experienced a recent episode of acute renal injury.

However, It was noted that the aggressive progression of his metastatic gastric carcinoma and likely lung involvement may have also significantly contributed to the adverse event.

This case highlights that hospital patients may have multiple complex medical conditions that may contribute to dyspnoea and the differentiation between TRALI, TACO and other conditions may not be straightforward. It is important to monitor patients with pre-existing disease closely when giving a transfusion, paying particular attention to their fluid balance. A careful clinical history is required to differentiate between TRALI and TACO to ensure appropriate treatment and to avoid unnecessary investigation and deferral of blood donors.

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