

CASE 2

This next case involves a 14-year-old boy who presented with a history of weakness, lethargy, and shortness of breath. We can call him John.

John's history indicated that he had been in excellent health up until 1 week before his hospital admission, at which point he noticed a decreased energy level, lethargy, and progressive shortness of breath—particularly when lying flat.

Upon physical examination, it was noted that the patient had tachypnea when lying flat, accompanied by respiratory wheezing. He also showed evidence of cervical and supraclavicular adenopathy.

After a thorough laboratory investigation, we learned that our patient had a white blood cell count of 30,000, hemoglobin was 11.1 g/dL, and his platelet count was 80,000. The differential count demonstrated 70% lymphs, 15% lymphoblasts, 10% atypical lymphs, and 5% neutrophils. Initial serum chemistries revealed a uric acid level of 6.0, phosphate was 10.0, potassium was 4.1, creatinine was 0.8, and LDH was 2,500.

Due to the nature of the patient's physical and laboratory findings, which included lethargy, a lumbar puncture was performed; this showed normal results. A bone marrow aspirate and biopsy were also conducted suggesting the diagnosis of T-cell acute lymphoblastic leukemia. A chest x-ray revealed a mediastinal mass 6 by 8 centimeters in size.

John was diagnosed with T-cell acute lymphoblastic leukemia. His serum chemistry levels combined with the fact that he had a bulky tumor also put him at an intermediate—or potential—risk for TLS. We wanted to treat his leukemia but also mitigate his risk for TLS simultaneously.

Induction chemotherapy was started with vincristine, prednisone, L-asparaginase, and doxorubicin. In this case, to mitigate the risk of clinical TLS, hydration was initiated with IV saline and the patient was started on aluminum hydroxide (as Amphogel). *ELITEK* was also given at 0.2 mg/kg/day and was initially planned for 5 days for uric acid reduction.

4 hours after initiation of therapy, serum chemistries demonstrated a uric acid level of 1.1 (an 81.6% reduction from baseline), phosphate was 4.6, potassium was 4.1, and creatinine was 0.8.

John completed his anti-cancer therapy without interruption.