Patient safety is at the forefront of health care and nursing practice. Oncology nurses strive to provide safe oncologic care in their management of cancer, treatments, and side effects. Oncologic emergencies such as tumor lysis syndrome (TLS), however, are serious complications of cancer and cancer treatment. TLS often is seen in hematologic malignancies, such as lymphomas and leukemias, that frequently occur in older adults. As the population in the United States continues to age, nurses must be prepared to manage oncologic emergencies in older adults. Understanding the risk factors and preventive strategies for TLS provides oncology nurses with a foundation for managing a serious treatment complication. Patients and their caregivers need to understand the importance of preventive measures for TLS; therefore, patient education must be a critical part of the oncology nurse’s plan of care.

### Case Study

Mr. F, age 70, was diagnosed with myelodysplastic syndrome (MDS) two years ago. He developed acute myelogenous leukemia (AML) about one year later. He was admitted to the hospital after a bone marrow biopsy to have a relapse of his AML. He was admitted to the hospital with recurrent AML for chemotherapy. His other medical conditions included coronary artery disease and hypertension. His past surgical history included coronary artery bypass graft surgery, appendectomy, cholecystectomy, and left knee surgery.

On admission to the hospital, Mr. F presented with fatigue and an elevated creatinine of 1.24 mg/dl. His laboratory studies revealed a white blood cell count of 32,700 U/L, hemoglobin of 8.6 g/dl, hematocrit at 25%, and platelets at 14,000 U/L. Following a transfusion of platelets and blood, his physicians decided to begin chemotherapy treatment. IV fluids and oral allopurinol were initiated for several days prior to chemotherapy administration in an attempt to prevent or minimize TLS.

Despite those preventive strategies, Mr. F experienced asymptomatic TLS, which was detected by abnormalities in his blood chemistry. Laboratory studies before, during, and after chemotherapy are shown in Table 1. Treatment interventions included monitoring his serum electrolytes and renal function every six hours. Mr. F was placed on telemetry for arrhythmia monitoring and treated with IV insulin-glucose therapy and sodium polystyrene sulfonate for hyperkalemia. Aluminum antacids were prescribed for treatment of hyperphosphatemia, and he continued to receive IV hydration and daily allopurinol for hyperuricemia.

Mr. F was closely monitored through oral intake and output measures, daily weights, and physical assessment for fluid overload. In addition, he received intermittent IV furosemide. Mr. F and his family received education about TLS through verbal communication with the primary nurse; his understanding was evaluated based on verbal discussion with his nurse. Fortunately, his condition gradually improved in about seven days. Mr. F recovered completely from TLS.