A 27 year old man who discharged himself against advice from the oncology unit 3 days ago is brought by his mother to your major tertiary ED. He was being treated with induction chemotherapy for Burkitt’s lymphoma.

He is confused, with myoclonic jerking and tetany on application of a venous tourniquet. He has crackles in the lung bases and an elevated JVP with some mild pitting oedema at the ankles. A junior doctor has already obtained blood tests.

The patient is trying to leave again and his mother is reasoning with him.

U&E: 145/6.3/30.4/800

Uric acid 11 mg/dL

Ca 1.15 (corrected), Alb 32, PO4 3.4

1. What is the likely diagnosis?
2. What is the cause?
3. What treatment is required?
4. What steps will you take to manage this patient.?

### Acute Tumor Lysis Syndrome

* Aetiology
  + Occurs within first 5 days of instituting chemotherapy or radiotherapy against sensitive and rapidly growing tumors
  + Most commonly seen with therapy for acute leukaemias and lymphomas (especially Burkitt’s)
  + Risk is low with solid tumors
  + Risk increases with:
    - Tumor size
    - Tumor sensitivity
    - Pre-existing hyperuricaemia
    - Pre-existing renal impairment
    - Pre-existing high LDH
* Pathophysiology

Cell Death

Hyperuricaemia

Protein Breakdown

DNA Breakdown

Hyperkalaemia

Hyperphosphataemia

Hypocalcaemia

Ventricular Dysrhythmias

Confusion, Muscle Twitches and Tetany

Acute Renal Failure

* Management
  + Prophylaxis
    - Delay chemotherapy if required
    - Hydrate
    - Allopurinol
    - Alkalynise urine to a pH>7
    - Close monitoring
  + Treatment
    - Avoid alkalization of urine if the syndrome develops
    - Treat with fluids +/- diuretics, glucose and insulin, calcium
    - Indications for dialysis
      * K+ >6
      * Urate > 10mg/dL (59)
      * Cr >880 μmol/mL
      * Phosphorus >10mg/dL (PO4­ >3.2 mmol/L) or rapidly rising
      * Volume overload
      * Symptomatic hypocalcaemia
* Prognosis
  + Good in the absence of renal failure
  + Grave if dialysis required for several days