**Patient**: M.G. (DOB 1956-01-10)  
**MRN**: 589742  
**Admission**: 2024-02-19 | **Discharge**: 2024-02-24  
**Physicians**: Dr. S. Blackwell (Hematology/Oncology), Dr. T. Reid (Nephrology)

**DISCHARGE DIAGNOSIS**

Chronic Lymphocytic Leukemia with Laboratory Tumor Lysis Syndrome after Cycle 1, Day 4 of Obinutuzumab

**ONCOLOGICAL DIAGNOSIS**

* **Primary**: Chronic Lymphocytic Leukemia (B-CLL), Binet Stage B
* **Diagnosed**: January 5, 2024
* **Histology/Immunophenotype**:
  + Peripheral blood flow cytometry: CD5+, CD19+, CD20+ (dim), CD23+, CD200+, lambda light chain restriction. CD38- (10%), ZAP-70- (12%)
  + Bone marrow biopsy: 45% infiltration with nodular and interstitial pattern
* **Molecular/Genetics**:
  + FISH: Deletion 13q14 (55% of cells)
  + Cytogenetics: 46,XY,del(13)(q14q22)[12]/46,XY[8]
  + IGHV: Mutated (92.6% homology)
  + TP53, NOTCH1, SF3B1: All negative
  + No complex karyotype
* **Risk Assessment**: CLL-IPI Score: 4 (high risk) - Age >65 (+1), Binet B (+1), β2-microglobulin: 3.6 mg (+2)
* **Treatment Indicators**: Progressive lymphadenopathy, progressive lymphocytosis, fatigue impacting quality of life
* **Disease Burden at Treatment**:
  + WBC: 96.8 x 10^9/L (85% lymphocytes, ALC 82.3 x 10^9/L)
  + Hemoglobin: 12.5 g/dL
  + Platelets: 115 x 10^9/L
  + Lymphadenopathy: Multiple enlarged nodes, largest 3.8 cm in left axilla
  + Splenomegaly: 2 cm below costal margin
  + β2-microglobulin: 3.6 mg/L, LDH: 280 U/L (both mildly elevated)

**CURRENT TREATMENT**

**Regimen**: Obinutuzumab + Venetoclax (first-line)

* **Administered prior to admission**:
  + Obinutuzumab 100 mg IV (Feb 16, 2024)
  + Obinutuzumab 900 mg IV (Feb 17, 2024)
  + Grade 1 infusion reaction on Day 1 (mild fever/chills) managed with rate reduction and acetaminophen
* **During admission**:
  + Obinutuzumab 1000 mg IV (Feb 23, 2024)
* **Planned**:
  + Obinutuzumab 1000 mg IV (Mar 1, 2024)
  + Venetoclax 5-week ramp-up starting Mar 8, 2024

**TLS Prophylaxis Prior to Admission**:

* Allopurinol 300 mg PO daily (started 72h pre-treatment)
* IV hydration (2 L/day) during infusions
* Daily electrolytes, LDH, uric acid monitoring for 48h post-infusion
* Patient educated on oral hydration (2-3 L/day)

**COMORBIDITIES**

* Hypertension (2012, controlled on amlodipine)
* Type 2 Diabetes Mellitus (2018, diet-controlled, HbA1c 6.7%)
* Hyperlipidemia (on atorvastatin)
* GERD (controlled on pantoprazole)
* No known allergies

**HOSPITAL COURSE**

68-year-old male with newly diagnosed CLL admitted on Day 4 post-obinutuzumab with laboratory evidence of tumor lysis syndrome. Patient presented for routine lab follow-up with mild fatigue and decreased appetite. Labs showed hyperkalemia (K+ 5.8 mEq/L), hyperphosphatemia (5.4 mg/dL), normal calcium (8.8 mg/dL), elevated uric acid (7.6 mg/dL), and mild AKI (Cr 1.4 mg/dL from baseline 1.0 mg/dL).

Management included:

* IV hydration (NS at 150 mL/hr)
* Rasburicase 7.5 mg x1 dose (Feb 19)
* Frequent electrolyte monitoring (q6h initially, then q12h)
* Sodium bicarbonate for mild metabolic acidosis
* Sevelamer for hyperphosphatemia
* Continuous cardiac monitoring

Patient responded well with progressive laboratory improvement:

* Day 1: K+ 5.8 mEq/L, PO4 5.4 mg/dL, uric acid 7.6 mg/dL, Cr 1.4 mg/dL
* Day 3: K+ 4.6 mEq/L, PO4 3.7 mg/dL, uric acid 5.4 mg/dL, Cr 1.1 mg/dL

Maintained adequate urine output (>60 mL/hr) with no cardiac arrhythmias or other TLS complications. ECG on admission showed normal sinus rhythm with no QT prolongation or other abnormalities; repeat ECGs remained unchanged. On Feb 23, received planned Cycle 1, Day 8 obinutuzumab dose (1000 mg) with enhanced TLS prophylaxis (IV fluids at 150 mL/hr for 12 hours before and after, allopurinol 300 mg daily, frequent laboratory monitoring) and tolerated well with no recurrent TLS.

The lymphocyte count decreased from 82.3 x 10^9/L pre-treatment to 36.4 x 10^9/L at discharge, representing a 56% reduction, consistent with expected response to obinutuzumab. Physical examination showed mild decrease in palpable lymphadenopathy compared to pre-treatment assessment.

Multidisciplinary discussion with Nephrology concluded patient experienced laboratory TLS without clinical manifestations, likely triggered by initial cytoreduction. Treatment plan modified to include enhanced monitoring for future doses.

**DISCHARGE MEDICATIONS**

* Allopurinol 300 mg PO daily
* Sevelamer 800 mg PO BID (reassess at next visit)
* Valacyclovir 500 mg PO BID
* TMP-SMX 960 mg PO Monday/Wednesday/Friday
* Amlodipine 5 mg PO daily
* Atorvastatin 20 mg PO at bedtime
* Pantoprazole 40 mg PO daily
* Acetaminophen 650 mg PO Q6H PRN pain/fever

**FOLLOW-UP PLAN**

**Oncology**:

* Labs (CBC, CMP, LDH, uric acid, phosphorus) three times weekly
* Planned inpatient admission March 1, 2024 for Cycle 1, Day 15 obinutuzumab
* Dr. Blackwell appointment Feb 29, 2024

**Nephrology**:

* Dr. Reid appointment Feb 29, 2024

**Treatment Plan Modifications**:

* Enhanced TLS prophylaxis for future obinutuzumab doses:
  + Inpatient administration
  + IV hydration (150 mL/hr for 12h before and 24h after)
  + Continue allopurinol 300 mg daily
  + Frequent lab monitoring (q8h for 48h)
* Venetoclax considerations:
  + Possibly more gradual ramp-up if lab abnormalities persist
  + Inpatient monitoring for first dose of each escalation

**Patient Education**:

* TLS signs/symptoms requiring immediate attention
* Importance of oral hydration (2-3 L/day)
* Medication adherence
* Laboratory monitoring schedule

**KEY LAB VALUES**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Parameter** | **Admission** | **Day 2** | **Discharge** | **Reference** |
| WBC | 48.5 | 45.2 | 41.8 | 4.0-11.0 x10^9/L |
| Lymphocytes | 42.2 | 39.3 | 36.4 | 1.0-4.8 x10^9/L |
| Hgb | 12.2 | 12.0 | 12.4 | 13.5-17.5 g/dL |
| Plt | 112 | 108 | 105 | 150-400 x10^9/L |
| Cr | 1.4 | 1.2 | 1.1 | 0.7-1.3 mg/dL |
| K+ | 5.8 | 5.2 | 4.6 | 3.5-5.0 mEq/L |
| PO4 | 5.4 | 4.8 | 3.7 | 2.5-4.5 mg/dL |
| Ca (corr) | 8.8 | 8.9 | 9.0 | 8.6-10.3 mg/dL |
| Uric Acid | 7.6 | 0.2\* | 4.4 | 3.4-7.0 mg/dL |
| LDH | 320 | 295 | 270 | 135-225 U/L |
| HCO3 | 20 | 22 | 24 | 22-29 mEq/L |

\*After rasburicase administration

**Electronically Signed**:  
Dr. S. Blackwell (Hematology/Oncology)  
Dr. T. Reid (Nephrology)  
Date: 2024-02-24