**Patient:** Martin Gallagher (DOB 1956-01-10)  
**Medical Record Number:** 589742  
**Date of Admission:** 2024-02-19  
**Date of Discharge:** 2024-02-24  
**Admitting Physician:** Dr. S. Blackwell (Hematology/Oncology)  
**Consulting Physician:** Dr. T. Reid (Nephrology)

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

**1. Detailed Oncological Diagnosis:**

Primary Diagnosis: Chronic Lymphocytic Leukemia (B-CLL), Binet Stage B.  
Date of Initial Diagnosis: January 5, 2024.

Histology/Immunophenotype:

* Peripheral blood flow cytometry (January 2024): CD5+, CD19+, CD20+ (dim), CD23+, CD200+, lambda light chain restriction. CD38- (10% positive), ZAP-70- (12% positive).
* Bone marrow biopsy (January 2024): 45% infiltration by CLL cells with a nodular and interstitial pattern.

Genetic/Molecular Profile:

* FISH: Deletion 13q14 (55% of cells), no other abnormalities detected.
* Cytogenetics: 46,XY,del(13)(q14q22)[12]/46,XY[8]
* IGHV mutation status: Mutated (92.6% homology to germline)
* TP53 mutation: Negative
* NOTCH1 mutation: Negative
* SF3B1 mutation: Negative
* Complex karyotype: No

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 Initiation:

* WBC: 96.8 x 10^9/L with 85% lymphocytes (absolute lymphocyte count 82.3 x 10^9/L)
* Hemoglobin: 12.5 g/dL
* Platelets: 115 x 10^9/L
* Lymphadenopathy: Multiple enlarged lymph nodes, largest 3.8 cm in left axilla
* Splenomegaly: Spleen tip palpable 2 cm below left costal margin
* β2-microglobulin: 3.6 mg/L (mildly elevated)
* LDH: 280 U/L (mildly elevated)

**2. Current Oncological Treatment:**

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

Treatment Schedule (Planned):

* Obinutuzumab:
  + Cycle 1, Day 1: 100 mg IV (February 16, 2024)
  + Cycle 1, Day 2: 900 mg IV (February 17, 2024)
  + Cycle 1, Day 8: 1000 mg IV (February 23, 2024)
  + Cycle 1, Day 15: 1000 mg IV (planned March 1, 2024)
* Venetoclax: 5-week ramp-up schedule intended to start on Day 22 of Cycle 1 (planned March 8, 2024)

Completed Treatment Prior to Admission:

* Obinutuzumab: Successfully administered 100 mg on Day 1 (February 16, 2024) and 900 mg on Day 2 (February 17, 2024)
* Infusion reactions: Grade 1 during Day 1 (mild fever and chills) managed with temporary infusion rate reduction and additional acetaminophen

Tumor Lysis Syndrome Prophylaxis (Prior to Admission):

* Allopurinol 300 mg PO daily (started 72 hours prior to first obinutuzumab dose)
* IV hydration (2 L/day) administered during obinutuzumab infusions
* Outpatient administration of obinutuzumab with extended monitoring
* Laboratory monitoring with daily electrolytes, LDH, and uric acid for 48 hours post-infusion
* Patient education on oral hydration (goal 2-3 L/day)

**3. History of Oncological Treatment:**

Previous Therapy: None. Obinutuzumab + Venetoclax is first-line therapy.

**4. Comorbidities:**

* Hypertension (diagnosed 2012, well-controlled on amlodipine)
* Type 2 Diabetes Mellitus (diagnosed 2018, diet-controlled, HbA1c 6.7%)
* Hyperlipidemia (on atorvastatin)
* History of GERD (well-controlled on pantoprazole)
* Allergies: none

**5. Physical Exam at Admission:**

General: 68-year-old male appearing mildly fatigued but in no acute distress.

Vitals: BP 148/82 mmHg, HR 84 bpm, RR 16/min, Temp 37.0°C, SpO2 96% on room air.

HEENT: Normocephalic. Moist mucous membranes. No scleral icterus.

Neck: Few small, non-tender cervical lymph nodes bilaterally (largest 1.5 cm). No JVD.

Cardiovascular: Regular rate and rhythm. S1, S2 normal. No murmurs, rubs, or gallops.

Respiratory: Clear to auscultation bilaterally. No wheezes, rales, or rhonchi.

Abdomen: Soft, non-tender, non-distended. Spleen tip palpable 2 cm below left costal margin. No hepatomegaly.

Extremities: No edema. Multiple palpable axillary and inguinal lymph nodes bilaterally (largest 3.8 cm in left axilla).

Skin: No rashes or lesions.

Neurological: Alert and oriented x3. Cranial nerves intact. Motor strength 5/5 throughout. Sensation intact. DTRs 2+ and symmetric.

ECOG Performance Status: 1 (Restricted in physically strenuous activity but ambulatory and able to carry out light work).

**6. Epicrisis:**

Mr. Gallagher is a 68-year-old male with CLL (Binet B) who was admitted on Day 4 after initiation of obinutuzumab (having received 100 mg on Day 1 and 900 mg on Day 2) with laboratory evidence of tumor lysis syndrome (TLS).

The patient presented to his scheduled laboratory follow-up appointment on February 19, 2024 (Day 4 post-initiation) feeling generally well but with mild fatigue and decreased appetite. Routine laboratory evaluation revealed hyperkalemia (K+ 5.8 mEq/L), hyperphosphatemia (phosphorus 5.4 mg/dL), normal calcium (corrected calcium 8.8 mg/dL), elevated uric acid (7.6 mg/dL), and mild acute kidney injury (creatinine 1.4 mg/dL from baseline 1.0 mg/dL).

Based on these findings consistent with laboratory TLS, the patient was admitted for monitoring and management. He remained clinically stable without significant symptoms of TLS other than mild fatigue.

Management during the hospitalization included:

1. IV hydration with normal saline at 150 mL/hr
2. Rasburicase 7.5 mg on 2024-02-19
3. Close monitoring of electrolytes every 6 hours initially, then every 12 hours
4. Sodium bicarbonate supplementation for mild metabolic acidosis
5. Oral phosphate binders (sevelamer) for hyperphosphatemia
6. Continuous cardiac monitoring

The patient responded well to these interventions with progressive improvement in laboratory parameters:

* Day 1 of admission: K+ 5.8 mEq/L, phosphorus 5.4 mg/dL, uric acid 7.6 mg/dL, creatinine 1.4 mg/dL
* Day 2 of admission: K+ 5.2 mEq/L, phosphorus 4.8 mg/dL, uric acid 6.2 mg/dL, creatinine 1.2 mg/dL
* Day 3 of admission (discharge): K+ 4.6 mEq/L, phosphorus 3.7 mg/dL, uric acid 5.4 mg/dL, creatinine 1.1 mg/dL

The patient maintained adequate urine output throughout his hospitalization (>60 mL/hr) and did not develop any cardiac arrhythmias or other TLS-related complications. His hypertension was well-controlled with his home medication (amlodipine).

After multidisciplinary discussion with the nephrology service, it was determined that the patient had experienced laboratory TLS without clinical manifestations, likely triggered by initial cytoreduction from obinutuzumab. Given his favorable response to conservative management and near normalization of laboratory values, the treatment plan was modified to continue the planned treatment schedule with closer laboratory monitoring and consider more gradual venetoclax ramp-up when initiated on Day 22.

On February 23, 2024, the patient proceeded with Cycle 1, Day 8 obinutuzumab 1000 mg dose as planned with enhanced monitoring and more aggressive TLS prophylaxis (IV hydration, allopurinol 300 mg daily). There was no further sign of TLS.

The patient was discharged in stable condition on Day 5 of hospitalization with a clear follow-up plan.

**7. Medication at Discharge:**

* Allopurinol 300 mg PO daily
* Sevelamer 800 mg PO BID (reevaluation at next admission)
* Valacyclovir 500 mg PO BID (herpes prophylaxis)
* Trimethoprim-sulfamethoxazole 960 mg PO daily on Mo/Wed/Fr (PCP prophylaxis)
* Amlodipine 5 mg PO daily (for hypertension)
* Atorvastatin 20 mg PO daily at bedtime (for hyperlipidemia)
* Pantoprazole 40 mg PO daily (for GERD)
* Acetaminophen 650 mg PO Q6H PRN pain/fever

**8. Further Procedure / Follow-up:**

Oncology Follow-up:

* Laboratory monitoring (CBC, CMP, LDH, uric acid, phosphorus) three times per week
* Planned inpatient admission on March 01, 2024, for Cycle 1, Day 15 obinutuzumab dose with enhanced TLS monitoring.
* Follow up with Dr. S. Blackwell on February 29, 2024 (day prior to scheduled admission).

Nephrology Follow-up:

* Follow up with Dr. T. Reid on February 29, 2024 to assess renal recovery and TLS status.

Treatment Plan Modifications:

* Enhanced TLS prophylaxis for future obinutuzumab doses:
  + Inpatient administration of next dose
  + IV hydration (150 mL/hr for 12 hours before and 24 hours after)
  + Maintain allopurinol 300 mg daily
  + More frequent laboratory monitoring (every 8 hours for 48 hours)
* When venetoclax is initiated on Day 22:
  + Consider more gradual ramp-up if any ongoing laboratory abnormalities
  + Inpatient monitoring for first dose of each escalation

Patient Education:

* Education provided on:
  + Signs/symptoms of TLS requiring immediate medical attention
  + Importance of oral hydration (2-3 L/day)
  + Medication adherence, especially allopurinol
  + Laboratory monitoring schedule

**9. Lab Values (Excerpt):**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Parameter** | **Admission (2/19/2024)** | **Day 2 (2/20/2024)** | | **Discharge (2/24/2024)** | **Units** | **Reference Range** |
| WBC | 48.5 | 45.2 | 41.8 | | x10^9/L | 4.0-11.0 |
| Lymphocytes (absolute) | 42.2 | 39.3 | 36.4 | | x10^9/L | 1.0-4.8 |
| Hemoglobin | 12.2 | 12.0 | 12.4 | | g/dL | 13.5-17.5 (M) |
| Platelets | 112 | 108 | 105 | | x10^9/L | 150-400 |
| Creatinine | 1.4 | 1.2 | 1.1 | | mg/dL | 0.7-1.3 |
| eGFR | 52 | 62 | 68 | | mL/min/1.73m² | >60 |
| BUN | 26 | 22 | 19 | | mg/dL | 7-20 |
| Potassium | 5.8 | 5.2 | 4.6 | | mEq/L | 3.5-5.0 |
| Phosphorus | 5.4 | 4.8 | 3.7 | | mg/dL | 2.5-4.5 |
| Calcium (corrected) | 8.8 | 8.9 | 9.0 | | mg/dL | 8.6-10.3 |
| Uric Acid | 7.6 | 0.2 | 4.4 | | mg/dL | 3.4-7.0 (M) |
| LDH | 320 | 295 | 270 | | U/L | 135-225 |
| Bicarbonate | 20 | 22 | 24 | | mEq/L | 22-29 |
| Anion Gap | 14 | 12 | 11 | | mEq/L | 8-16 |

Electronically Signed By:  
Dr. S. Blackwell (Hematology/Oncology)  
Date/Time: 2024-02-24 14:15

Dr. T. Reid (Nephrology)  
Date/Time: 2024-02-24 13:30