**Patient:** Richard Thompson (DOB 1956-06-14)  
**Medical Record Number:** 728391  
**Date of Admission:** 2024-03-10  
**Date of Discharge:** 2024-03-30  
**Admitting Physician:** Dr. M. Garcia (Hematology/Oncology)  
**Consulting Physicians:** Dr. L. Chen (Neurology), Dr. S. Williams (Infectious Disease), Dr. J. Patel (Cardiology)

**Discharge Diagnosis: Multiple Myeloma, Post-CAR-T Cell Therapy (Carvykti/ciltacabtagene autoleucel)**

**1. Detailed Oncological Diagnosis:**

Primary Diagnosis: Multiple Myeloma, IgA Kappa, Relapsed/Refractory  
Date of Initial Diagnosis: June 2021

Initial Diagnostic Criteria:

* Bone marrow biopsy (June 2021): 40% clonal plasma cells
* Serum monoclonal protein: IgA kappa, 3.2 g/dL
* Skeletal survey: Multiple lytic lesions in skull, ribs, and spine
* Anemia: Hemoglobin 8.9 g/dL
* Hypercalcemia: Corrected calcium 11.2 mg/dL
* Renal function: Normal (Creatinine 1.0 mg/dL)

Cytogenetics/FISH (Initial): t(4;14)(p16;q32) - high risk, Gain of 1q21 (3 copies) - high risk, No deletion 17p

Staging at Diagnosis:

* ISS: Stage II (β2-microglobulin 4.5 mg/L, albumin 3.6 g/dL)
* Revised International Staging System (R-ISS): Stage II (high-risk cytogenetics, LDH 195 U/l)

**2. Current Oncological Treatment:**

CAR-T Cell Therapy:

* Product: Carvykti (ciltacabtagene autoleucel), BCMA-directed CAR-T cell therapy
* Dose: 0.75 × 10^6 CAR-positive viable T cells/kg (total 60 × 10^6 cells)
* Infusion date: March 12, 2024

Lymphodepletion Regimen:

* Fludarabine 30 mg/m² IV daily for 3 days (March 8-10, 2024)
* Cyclophosphamide 300 mg/m² IV daily for 3 days (March 8-10, 2024)

Supportive Care:

* Tocilizumab 8 mg/kg IV × 2 doses (March 14 and March 16, 2024) for Grade 2 CRS
* Dexamethasone 10 mg IV × 1 dose (March 16, 2024) for CRS not responding to tocilizumab
* IVIG 400 mg/kg IV on March 28, 2024 (for hypogammaglobulinemia)
* G-CSF (filgrastim) 480 mcg SC daily × 3 doses (March 21-23, 2024) for neutropenia
* Antimicrobial prophylaxis:
  + Acyclovir 400 mg PO BID
  + Posaconazole 300 mg PO daily
  + Levofloxacin 500 mg PO daily (discontinued on March 24 after count recovery)

Notable Events/Complications:

* Grade 2 CRS requiring tocilizumab × 2 doses and dexamethasone × 1 dose
* Grade 1 ICANS with spontaneous resolution
* Grade 3 neutropenia responding to G-CSF
* Grade 2 thrombocytopenia (nadir 42 × 10^9/L) without bleeding
* No documented infections
* Hypogammaglobulinemia (IgG 350 mg/dL) requiring IVIG replacement
* No significant organ toxicities (renal, hepatic, or cardiac)

**3. History of Oncological Treatment:**

First-Line Therapy (June 2021 - January 2022):

* VRd regimen (bortezomib, lenalidomide, dexamethasone) for 4 cycles
* Achieved partial response (PR)
* Autologous stem cell transplant (ASCT) January 2022
* Response deepened to very good partial response (VGPR)
* Maintenance: Lenalidomide 10 mg daily

First Relapse (November 2022):

* Progression on lenalidomide maintenance
* Second-line: DKd regimen (daratumumab, carfilzomib, dexamethasone)
* Achieved partial response after 4 cycles
* Completed 8 cycles with best response of VGPR

Second Relapse (August 2023):

* Biochemical progression during ongoing DKd therapy
* Third-line: Isatuximab, pomalidomide, dexamethasone (IsaPd)
* Initial response followed by progression after 4 cycles

Third Relapse (December 2023):

* Clear progression on IsaPd
* Selinexor, bortezomib, dexamethasone (SVd) bridge therapy while awaiting CAR-T
* Progressive disease despite bridge therapy
* Leukapheresis for CAR-T cell manufacturing: February 15, 2024

Disease Status Prior to CAR-T:

* Triple-class exposed and refractory (IMiDs, PIs, and anti-CD38 antibodies)
* Progressive disease with rising paraprotein, new bone lesions
* Recent bone marrow biopsy (February 2024): 45% clonal plasma cells
* BCMA expression: Positive (>80% of plasma cells)

**4. Comorbidities:**

* Hypertension (diagnosed 2010, well-controlled)
* Type 2 Diabetes Mellitus (diagnosed 2015, HbA1c 6.8% pre-admission)
* Secondary hyperparathyroidism due to Vitamin D deficiency
* History of DVT (2021, during initial myeloma therapy)
* Moderate osteoarthritis of both knees
* Gastroesophageal reflux disease (GERD)

**5. Physical Exam at Admission:**

General: 67-year-old male in no acute distress, Eastern Cooperative Oncology Group (ECOG) performance status 1.

Vitals: BP 138/84 mmHg, HR 76 bpm, RR 16/min, Temp 36.8°C, SpO2 97% on room air.

HEENT: Normocephalic, atraumatic. No oral lesions. No cervical lymphadenopathy.

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

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

Abdomen: Soft, non-tender, non-distended. Normal bowel sounds. No hepatosplenomegaly.

Musculoskeletal: Mild tenderness to palpation over thoracic spine. Full range of motion in all extremities. No peripheral edema.

Neurological: Alert and oriented x3. CN II-XII intact. Motor strength 5/5 throughout. Sensation intact to light touch. DTRs 2+ and symmetric.

Skin: No rashes or lesions. Central line site clean, dry, and intact.

**6. Hospital Course:**

Mr. Thompson was admitted on March 10 for lymphodepletion chemotherapy followed by Carvykti (ciltacabtagene autoleucel) CAR-T cell therapy for his triple-class refractory multiple myeloma. After successful lymphodepletion with fludarabine and cyclophosphamide, he received CAR-T infusion on March 12 without immediate complications.

On day +2 post-infusion, he developed Grade 2 cytokine release syndrome (CRS) with fever, mild hypotension, and tachycardia, requiring one dose of tocilizumab. His CRS symptoms briefly worsened on day +4, necessitating a second tocilizumab dose and one dose of dexamethasone, after which his symptoms gradually resolved. On day +8, he experienced mild Grade 1 ICANS with word-finding difficulties and fine tremor that resolved spontaneously without specific intervention.

He developed expected cytopenias with neutrophil and platelet nadirs on days 9-12, requiring G-CSF support for three days with subsequent count recovery. He received one dose of IVIG for hypogammaglobulinemia before discharge.

Initial response assessment showed promising decrease in M-protein from 2.8 g/dL to 1.2 g/dL. He was discharged on day +18 in stable condition with appropriate antimicrobial prophylaxis and close follow-up scheduled.

**7. Discharge Medications:**

CAR-T Related:

* Acyclovir 400 mg PO BID (continue for at least 12 months post-CAR-T)
* Posaconazole 300 mg PO daily (continue until day +90 post-CAR-T)
* Trimethoprim-sulfamethoxazole 800/160 mg PO three times weekly (PCP prophylaxis, continue until CD4 >200/μL)

Chronic Medications:

* Metformin 500 mg PO BID
* Lisinopril 10 mg PO daily
* Pantoprazole 40 mg PO daily
* Apixaban 5 mg PO BID
* Calcium carbonate 600 mg PO daily
* Vitamin D3 2000 IU PO daily
* Zoledronic acid 4 mg IV q4w

PRN Medications:

* Acetaminophen 650 mg PO Q6H PRN pain/fever
* Ondansetron 4 mg PO Q8H PRN nausea
* Lorazepam 0.5 mg PO Q8H PRN anxiety or insomnia

**8. Follow-up Plan:**

Short-term Follow-up:

* CAR-T clinic appointment: April 2, 2024 (day +21)
* CBC, CMP, immunoglobulins twice weekly for first 4 weeks
* SPEP, UPEP, immunofixation, and serum free light chains at day 28 post-infusion
* First formal response assessment at day 28 post-infusion including Zoledronic acid infusion

Monitoring Requirements:

* Daily temperature checks at home
* Weekly CBC, CMP for 8 weeks post-discharge
* Regular assessment for late-onset CRS or ICANS (up to 8 weeks)
* Routine assessment for B-cell aplasia and hypogammaglobulinemia

Long-term Follow-up:

* Monthly clinic visits for first 6 months
* IgG level monitoring every 3 months; IVIG replacement if IgG <400 mg/dL or recurrent infections
* Bone marrow assessment at 3 months post-CAR-T if evidence of response
* PET/CT at 3 months post-CAR-T if initial response is documented
* Resumption of age-appropriate cancer screening at 6 months

Vaccinations**:**

* All live vaccines contraindicated until immune recovery
* Inactivated vaccine series to begin at approximately 12 months post-CAR-T, pending immune recovery

When to Seek Immediate Medical Attention:

* Fever ≥38.3°C (101°F)
* New or worsening confusion, difficulty speaking, or altered mental status
* New or worsening shortness of breath or chest pain
* Persistent headache, dizziness, or blurry vision
* Shaking chills, severe fatigue, or feeling faint

Activity Restrictions:

* No driving for 8 weeks post-infusion
* Avoid crowds and people with active infections for 3 months
* Gradually increase activity as tolerated
* No heavy lifting (>10 lbs) for 2 weeks due to central line

Diet:

* Low-microbial diet recommended for 3 months
* Avoid raw or undercooked food
* Adequate hydration (at least 2-3 liters daily)

**9. Laboratory Data:**

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| --- | --- | --- | --- |
| **Parameter** | **Pre-Lymphodepletion (3/7/24)** | **Pre-Discharge (3/30/24)** | **Reference Range** |
| WBC | 4.8 × 10^9/L | 3.2 × 10^9/L | 4.0-11.0 × 10^9/L |
| ANC | 3.1 × 10^9/L | 2.1 × 10^9/L | 1.8-7.7 × 10^9/L |
| Lymphocytes | 0.9 × 10^9/L | 0.6 × 10^9/L | 1.0-4.8 × 10^9/L |
| Hemoglobin | 10.2 g/dL | 9.6 g/dL | 13.5-17.5 g/dL |
| Platelets | 120 × 10^9/L | 78 × 10^9/L | 150-400 × 10^9/L |
| Creatinine | 1.1 mg/dL | 1.0 mg/dL | 0.7-1.3 mg/dL |
| Calcium (corrected) | 9.2 mg/dL | 9.0 mg/dL | 8.5-10.5 mg/dL |
| Albumin | 3.4 g/dL | 3.2 g/dL | 3.5-5.0 g/dL |
| Total Protein | 7.8 g/dL | 6.5 g/dL | 6.0-8.0 g/dL |
| ALT | 28 U/L | 32 U/L | 7-56 U/L |
| AST | 24 U/L | 28 U/L | 8-48 U/L |
| Total Bilirubin | 0.8 mg/dL | 1.0 mg/dL | 0.1-1.2 mg/dL |
| LDH | 220 U/L | 320 U/L | 140-280 U/L |
| Ferritin | 450 ng/mL | 980 ng/mL | 30-400 ng/mL |
| CRP | 2.1 mg/L | 8.4 mg/L | <10 mg/L |
| IgG | 680 mg/dL | 350 mg/dL | 700-1600 mg/dL |
| IgA (M-protein) | 2800 mg/dL | 1200 mg/dL | 70-400 mg/dL |
| IgM | 45 mg/dL | 30 mg/dL | 40-230 mg/dL |
| Kappa FLC | 62.5 mg/L | 28.2 mg/L | 3.3-19.4 mg/L |
| Lambda FLC | 15.2 mg/L | 14.8 mg/L | 5.7-26.3 mg/L |
| K/L Ratio | 4.11 | 1.91 | 0.26-1.65 |
| β2-microglobulin | 4.2 mg/L | 3.8 mg/L | <2.7 mg/L |

Electronically Signed By:  
Dr. M. Garcia, MD  
Hematology/Oncology  
Date/Time: 2024-03-30 15:30

Dr. S. Williams, MD  
Infectious Disease  
Date/Time: 2024-03-30 14:45

Dr. L. Chen, MD  
Neurology  
Date/Time: 2024-03-30 14:00