Challenging Cases Presentation

Michael C. Wiemann, MD, FACP
Program Co-Chair and Vice President
Indy Hematology Education
President, Clinical
St. John Providence Physician Network
Detroit, Michigan

36 YEAR OLD WITH MDS

- 36 year old who presented splenomegaly and cytopenias .
- WBC: 3.4, Hg of 13.9, and Platelet count of 272,000
- Peripheral blood flow cytometry: Normal
- Bone marrow biopsy: hypocellular marrow with granulocytic hypoplasia with frequent hypogranular neutrophils and megablastic erythropoiesis and dysmegakaryopoiesis.
- Cytogenetics: Normal and Negative MDS panel FISH panel.
- Multi-gene NGS panel: Negative (including ASXL, ATRX), except for a mutation of DNMT3A mutation; a mutation noted in 8% of MDS of undetermined significance and associated with poor prognosis
- Diagnosis: Myelodysplastic syndrome.
- Repeat BM 1 year after diagnosis: Hypoplastic myelodysplastic syndrome with multilineage dysplasia with normal cytogenetics and 3% blasts with dysplastic hypocellular granulopoiesis identified and normal erythropoiesis noted.
- Revised International Prognostic Scoring System (IPSS-R) score: 2.5, adjusted for age: low IPSS score of 1.23, very low risk

86 YEAR OLD WITH AML

- 86-year-old female with a history of known thalassemia trait presentes with increasing fatigue and shortness of breath associated with intermittent melena of about two weeks duration.
- CBC: WBC 6.5, ANC 1950, Hg 5.7, associated with severe microcytosis, consistent with the patient's known history of thalassemia trait. (Patient's normal Hg: 10.9 was documented in 2009).
- Peripheral smear: Monoblasts, suspicious for Acute Myelogenous Leukemia.
- Bone marrow biopsy: 100% cellularity with blasts representing 80% of the marrow cellularity. Decreased erythropoiesis and megakaryopoiesis with mild dyspoiesis present.
- Iron stain: Absence of reticuloendothelial iron stores.
- Cytogenetics: No mitosis and Negative FLT-3 ITD, IDH1/2 mutations, FISH negative
- Diagnosis: Acute Myeloid Leukemia with monocytic differentiation

21 YEAR WITH RELAPSED AML (WITH TRANSLOCATION 8;21)

- 21-year-old man who presents with sore throat associated with neck adenopathy and fevers of 4-5 days duration.
- CBC : WBC 23 with 36% blasts associated with anemia and thrombocytopenia
- Repeat CBC: WBC 17, hg 8, and a platelet count of 37 with 88%
- Peripheral blood smear: Consistent with acute myelogenous leukemia.
- Bone marrow biopsy confirmed Acute Myelogenous leukemia with an 8;21 translocation consistent with Acute Myelogenous Leukemia with translocation 8;21 (q22;q22) (RUNX1-RUNX1T1).
- Molecular testing: Negative for NPM,CEBPA and CKIT mutations and also negative for IDH1/IDH2 and negative for FLT3 ITD or TKD mutations
- Treatment: 7 + 3 (Daunorubicin/Cytarabine) + HiDAC Consolidation x 3 – Achieves a Complete remission.
- 1 year follow-up: Pancytopenia and fatigue
- Bone Marrow Biopsy: Consistent with relapse, Molecular testing negative.

61 year old with Essential thrombocytosis/myelofibrosis in fibrotic stage with associated Progressive ANEMIA

- 61 year old, who presented in at the age of 36 with an abnormal CBC: WBC 8,03, Hg 15.8, Plts: 1,128,000
- JAK-2 muation negative
- Bone Marrow Biopsy: Maturing trilineage hematopoiesis, increased megakaryocytes with dysplastic forms, normal cytogenetics, and negative BCR/abl
- Diagnosis: Essential Thrombocytosis
- Initial Treatment: Anagrelide and aspirin.
- 5 YEARS AFTER DIAGNOSIS: Presents with progressive progressive anemia resulting in repeat bone marrow biopsy with a dry tap
- Diagnosis: Primary Myelofibrosis consistent with fibrotic stage.
- Treatment: ESAs and transfusion, declines allogeneic hematopoietic stem cell transplantation and interferon.
- 4 YEARS LATER: Progressive anemia: WBC 3.35, Hg 7.48, normal differential, and platelet count of 205,000

57 YEAR OLD WITH CML; NOT REACHING MOLECULAR TARGETS WITH TOXICITIES ON THERAPY

- 57-year-old with PMH/o Uterine leiomyosarcoma resulting in radical hysterectomy, followed by adjuvant chemotherapy and radiation therapy achieving a complete remission.
- Presents with fatigue and diarrhea of about a week's duration: WBC: 165,000.
- Bone marrow biopsy consistent with Chronic Phase Chronic Myelogenous Leukemia with the presence of the Philadelphia chromosome in 20/20 metaphyses on cytogenetics
- Initial Therapy: Dasatinib 100 mg daily without the patient meeting remission targets resulting in a dose escalation to 70 mg bid without meeting molecular targets and with significant toxicities. No resistant mutations identified.
- 3 years following diagnosis: Imatinib 500mg PO daily was initiated.
- 4 years following diagnosis: BCR/ABL oncoprotein level of 0.239, severe arthralgias on imatinib.