ROWAN-VIRTUA School of Osteopathic Medicine

GATA 2 Deficiency : A Mystery Myelodysplasia

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Case Presentation

Nov 2020
55 year old F with PMHx GERD went to ED for evaluation of myalgias
On RA, No SIRS
Hgb 10 WBC 4
Dispo Home

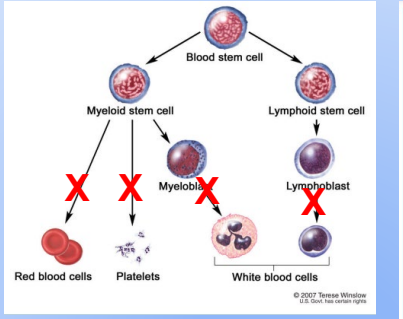
Dec 2020 (early)
Symptoms progress to fevers, chills, and shortness of breath by early December attributed to SARS-CoV-2 ; Official testing was negative
She did not meet inpatient criteria
Returned to ED a week later for evaluation of a **rash on her back**.
Sent home rom ED for PCP follow up

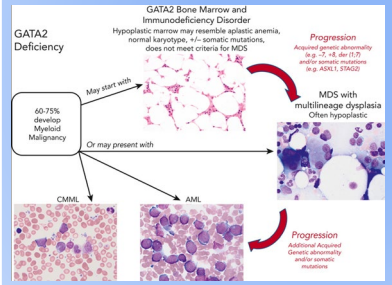
Dec 2020 – Jan 2021
She returned to the ED three weeks later for evaluation of SOB/DOE, fatigue fevers and 30 lb weight loss over the past month.
Hgb 6 WBC 3.8→ admitted to medicine for PRBC transfusion and IV Antibiotics
Iron studies normal, no evidence of hemolysis, occult stool neg
Blood cultures, PCR, Flu, Covid Neg Evaluated by rheumatology.
CT Chest with multiple 2-4mm nodules
Tick born panel neg
DDX Adult Stills Dx vs MCTD. Started on prednisone and fevers improved. Dispo home with outpatient rheumatology, heme/onc and GI follow up for EGD to rule out UGIB

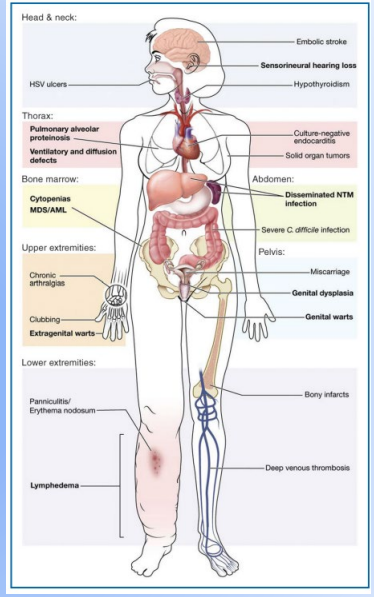
March 2021
Outpatient work up interrupted by persistent fevers and DOE
Admitted to medicine for AHRF

CT chest showed increasing alveolar nodular opacities and enlarged mediastinal lymph nodes.
Aspergillus growing in sputum culture. IV Abx and IV Antifungals
Stabilized and discharged

April 2021
BMB showing numerous AFB in the bone marrow, refractory anemia with 4% blasts, trisomy 8 mutation, and disseminated MAC.
Readmitted and started on RIPE (RIF/INH/PZA/EMP) therapy, which was later changed to RIE with azithromycin after GeneXpert testing was negative for Mtb
MDS as the cause or the effect of disseminated MAC was considered
Based on association of trisomy 8, MDS was favored.
Case discussed with NIH where diagnosis of GATA 2 Deficiency was confirmed



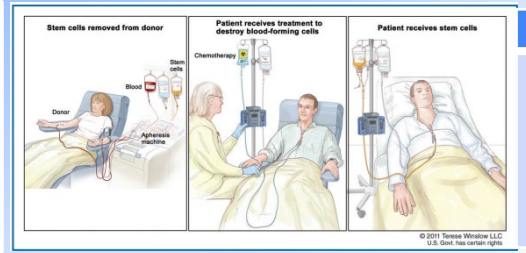




No clear evidence to support treatment in phenotypically silent, but should be done before MDS develops

No reliable estimates exist on the outcomes GATA2-deficient patients within prospective cohorts.

The NIH reported a survival rate of 54% at 4 years after HSCT in 21 GATA2-deficient patients transplanted for myeloid neoplasia or immunodeficiency



Discussion

GATA2 is a transcription factor critical for hematopoietic stem cell development and differentiation.

GATA2 Deficiency exhibits Autosomal Dominant inheritance pattern

Over 150 known germline mutations

Isolated trisomy 8 is a common cytogenetic category

The mechanisms by which GATA2 mutations contribute to the pathogenesis of MDS are not fully understood but are thought to disrupt the normal balance of hematopoietic stem and progenitor cell self-renewal and differentiation.

By age 20, about 50 percent of people with a GATA2 mutation have symptoms. By age 60, however, only about 5 percent of people remain symptom-free

References

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2. National Institute of Allergy and Infectious Diseases. GATA2 Deficiency. NIH; 2016. Available from: https://www.niaid.nih.gov/sites/default/files/GATA2-Factsheet
3. Spinner MA, Sanchez LA, Hsu AP, et al. GATA2 deficiency: a protean disorder of hematopoiesis, lymphatics, and immunity. Blood. 2014; 123 (6): 809–821.