One Patient's Story of Aplastic Anemia

UPMC Hamot

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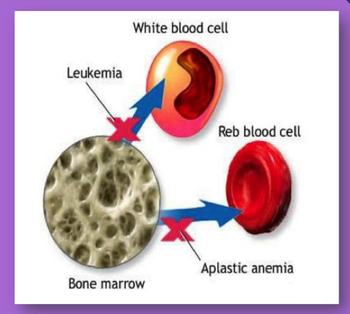


Introduction

Aplastic anemia is a rare, life-threatening condition where red blood cells, white blood cells (WBC), and platelets are greatly lowered due to destruction of hemopoietic stem cells in the bone marrow by the immune system (Olson, 2020a). About 2-3 per million cases occur yearly in Western countries, however, in Asia the incidence is 2-3 times higher (Olson, 2020a). Both sexes are equally affected. Aplastic anemia can have acquired or genetic causes. Patients usually present with bleeding, low blood counts, petechiae rash, fatigue, infection, and bruising (Pilgrim & Parks-Chapman, 2018).

Treatment and Prognosis

Standard treatment is a hemopoietic stem cell transplant (HSCT) if a donor is available (Miano & Dufour, 2015). If a HSCT cannot be done due to no donor or being over age for inclusion, the standard treatment involves horse antithymocyte globulin (HATG) and cyclosporine (Olson, 2020b). HSCT is recommended for those under 50 years of age. Eltrombopag, a bone marrow stimulant, may also be prescribed (Olson, 2020b). Patients can relapse or become refractory to treatment (Olson, 2020b)

If untreated, patients have a mortality rate of greater than 70% (Olson, 2020b). Overall prognosis is variable and depends on the occurrence of complications. With treatment, survival rates are 80-90% (Olson, 2020b). Complications can include infection, uncontrolled bleeding, HSCT rejection if one was performed, intolerance to medications used for treatment, and blood product transfusion reactions.

Acquired causes	Genetic causes
Chemotherapy and radiation	Faconi's anemia
Anti-seizure medications	Dyskeratosis congenital
Antibiotics	Shwachman-Diamond syndrome
NSAIDs	Amegakaryocytic thrombocytopenia
Anti-thyroid medications	Reticular dysgenesis
Gold	
Arsenic	
Toxic chemicals: glue vapors, solvents, benzene	
Viruses: Epstein-Barr, seronegative hepatitis, HIV, herpes	
Immune disorders: Lupus, eosinophilic fasciitis, graft vs. host disease	
Pregnancy	
Anorexia nervosa	

Oslon, T. S. (2020a). Aplastic anemia: Pathogenesis, clinical manifestations, and diagnosis. *UpToDate*. Retrieved from https://www.uptodate.com/home

Case Report

W.Z., a 49-year-old female, was admitted with bleeding gums and epistaxis. She has a history of aplastic anemia and has required multiple platelet transfusions. In the emergency department her platelet count was 4 and WBC count was 1.5. One super pack of platelets was transfused, and she was placed in neutropenic precautions. Platelets were 28 the following day. Her medication regimen consists of eltrobompag, acyclovir, cyclopsporine, prednisone, diflucan and levofloxacin. Prior to admission, the patient had received HATG to further induce immunosuppression. The patient's growing frustration with not responding well to treatment was a particular concern. Emotional support was provided to her and the family. W.Z. was discharged two days later with improvement in platelet count and no further bleeding.

Standard Treatment: Stem cell transplant (1st line therapy)

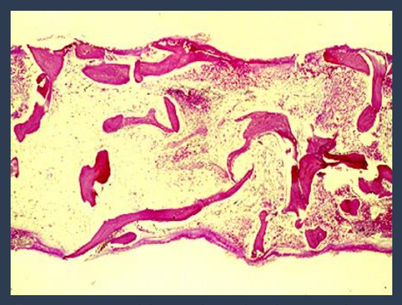
Patient's Care: Did not receive one per patient history.

Standard Treatment: Immunosuppression with cyclosporine, horse ATG, and eltrombopag

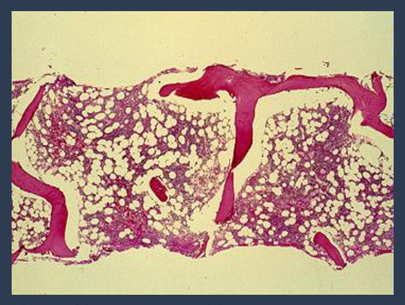
Patient's Care: Patient is currently on cyclosporine and eltrombopag and did receive a HATG infusion. Patient is also on prednisone, which can increase WBCs and may prevent serum sickness after HATG infusions.

Standard Treatment: Blood product transfusions depending on blood cell counts.

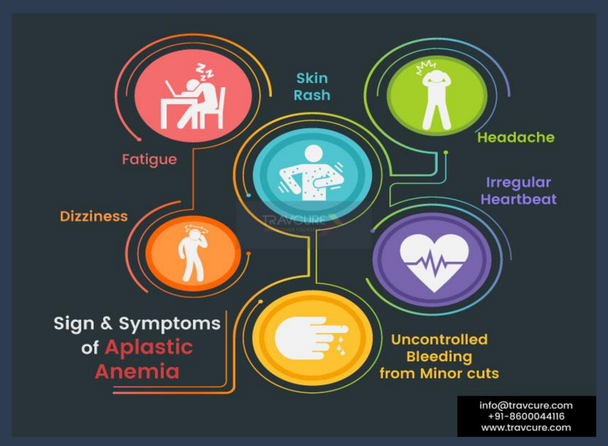
Patient's Care: Patient has received multiple platelet transfusions in the past and was transfused platelets this admission.



Bone marrow biopsy in aplastic anemia with little to no blood cells present

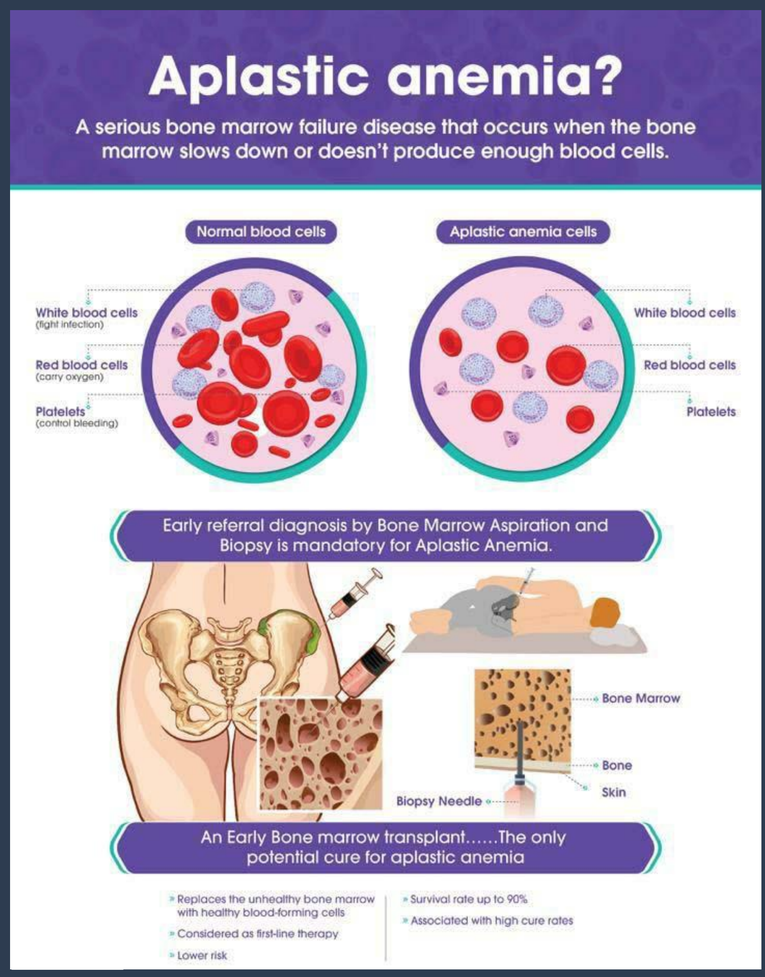


Normal bone marrow biopsy with a multitude of blood cells



Fast Facts

- There are an estimated number of 0.6-6.1 cases of aplastic anemia per million people United States.
- Diagnosis is typically through a bone marrow biopsy and collecting a complete blood count with differential through a blood draw.
- Specialized testing of blood and bone marrow is done to detect any genetic disorders that could cause aplastic anemia and to differentiate between other conditions that can cause low blood counts.
- The goal of treatment is to reduce the risk of complications, optimize blood counts, educate, and provide emotional support to patient and family.



Bhargava, R. (2018, October 4). Aplastic anemia treatment in India. Retrieved March 10, 2020, from https://www.lyfboat.com/aplastic-anemia-treatment-in-india/

References

Miano, M., & Dufour, C. (2015). The diagnosis and treatment of aplastic anemia: A review. *International Journal of Hematology, 101*, 527–535

Oslon, T. S. (2020a). Aplastic anemia: Pathogenesis, clinical manifestations, and diagnosis. *UpToDate*. Retrieved from https://www.uptodate.com/home

Olson, T.S. (2020b). Treatment of aplastic anemia in adults. UpToDate. Retrieved from https://www.uptodate.com/home

Pilgrim, J., & Parks-Chapman, J. (2018). Aplastic Anemia. Pravikoff, D. ed. *CINAHL Nursing Guide.* Retrieved from https://www.health.ebsco.com/products/the-cinahl-database