

Luspatercept: Treating patients with Myelodysplastic Syndrome and its Effectiveness

Sharon Mattox Advance Practice Nurse
 Leukemia Department

BACKGROUND

Will demonstrate how Luspatercept, has been beneficial in patients with Low Risk Myelodysplastic Syndrome. Luspatercept is a recombinant fusion protein comprised of a modified extracellular domain of activin receptor type IIB fused to the FC domain of human IgG1. Luspatercept was approved by the FDA to treat anemia in patients with MDS in November 2019. The brand name is Reblozyl (Celgene Corporation). This drug is indicated for treatment of anemia and for those patients who fail treatment with an erythropoiesis stimulating agent. Examples Procrit, Epogen and Aranesp. Also, Luspatercept is indicated for patient who are requiring 2 or more blood transfusions over an 8-week period.

Objective; Summarize the indication of Luspatercept in management of patients with Low Risk MDS. Demonstrate how Luspatercept reduces the need for blood transfusions in patients with MDS. The reader will understand that this drug is used in patient who fail erythropoietin stimulation agent and those patients with low risk MDS with ringed sideroblast..

MDS

Myelodysplastic syndromes (MDS) is a malignant stem cell disorders characterized by clonal hematopoiesis, cytopenias (anemia, neutropenia, and/or thrombocytopenia). Patients may progress to Acute Myeloid Leukemia in approximately 20% of cases.

Luspatercept is also used to treat Myelofibrosis, and Beta-Thalassemia.

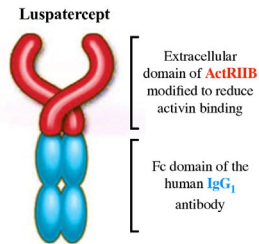
Facts about Luspatercept

Dosage of Luspatercept 1 mg/kg every 3 weeks. Increase to 1.25 mg/kg is therapeutic. Subcutaneous injection under the skin; upper arm, abdomen, or thigh. Administer in a health care setting, clinic/ hospital. Monitored carefully for side effects;



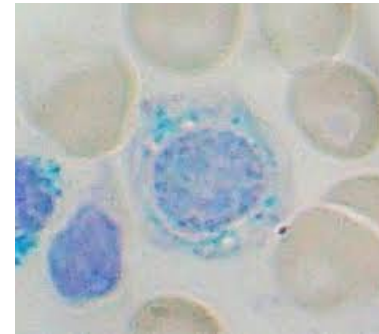
Side Effect of Luspatercept

- Joint pain.
- Fatigue
- Bone pain
- Abdominal pain
- Headache
- Hypertension
- flu-like symptoms
- cough
- diarrhea
- Nausea
- stomach pain
- Dyspnea



What are Ring Siderblast:

Ringed siderblast is a form of anemia that affects the bone marrow directly. The bone marrow produces ringed siderblast rather than healthy red blood cell. In siderblastic anemia, the body has iron available, but is not able to incorporate it into the hemoglobin. The red blood cells need this iron in the cell in order to transport oxygen throughout the body. This issues may be caused by MDS, a hematological malignancy.



Case Study #1

80 year old female, with a history of low risk MDS.

Dx 2019, treated with Darbopoetin injections for 12 months, patient remained anemic. Patient required blood transfusion at least 2 to 3 times per month.

Bone marrow results: 3% blast, Flow showed no significant blast, Leukopenia, ringed siderblast, adequate for morphology.

Started Luspatercept 1mg/kg every 3 weeks for a total of 10 injections. Repeat lab work on a every 2 weeks demonstrated that her hemoglobin improved significantly. Hgb range is from 8.9 to 9.6. Patient blood transfusions requirements decreased and this improved her quality of life.

Case Study #2

76 year of male with MDS/ringed siderblast, diagnosed in Oct 2020. He was treated Erythropeitin x 13 months, then failed treatment. Bone marrow result: 1% blast, right posterior iliac crest, clot section, variable cellular overall 20% with erythroid predominate trilineage, 70% ring siderblast, 1% circulating blast.

Patient continued to receive blood products intermittently from March-June 2022, patient Started Luspatercept 1mg/kg SQ, every 3 weeks.

Blood work done biweekly to ensure that we are following his labs closely. Hemoglobin was 7.5, previously and now HGB ranges from 9.0 to 10.5. No need for blood transfusion and the patient has improve quality of life.

CONCLUSION

METHOD; Analyze 2 patient over a 24-month period of time, through a case study, and face to face interview.

RESULTS; The results were identified by evaluating the patients overall experience while on Luspatercept. Also, reviewing how patient felt while taking the medication and monitoring for side effect of the drug.

Benefits of Luspatercept

Luspatercept is a growth factor that works well with patient who have low risk Myelodysplastic Syndrome and these are some of the benefits;
 Improve hemoglobin, lead to transfusion independence, improve quality of life, help manage cytopenia and reduce the need for stem cell transplant. Luspatercept is used to help the body make more red blood cells.