

a series of fact sheets written
by experts in the field of liver
disease

HCV Treatment Side Effect Management: Hemolytic Anemia

Alan Franciscus, Editor-in-Chief

Red blood cells (RBC) or erythrocytes carry oxygen to body tissues, producing fuel that the body needs to stay healthy. The normal average life span of a red blood cell is about 90 to 120 days; after red blood cells have worn out, the spleen removes them from circulation. New red blood cells are produced in the bone marrow. It is a balancing act to make and replace red blood cells that have been destroyed. When this balance is upset, a person can develop anemia. There are many different causes and types of anemia. This fact sheet will discuss ribavirin-induced hemolytic anemia.

Hemolytic anemia refers to a condition in which red blood cells are destroyed faster than the body can make enough new ones to replace them. The medications used to treat hepatitis C can cause hemolytic anemia, with ribavirin and boceprevir being the main cause of anemia.

Symptoms

The most common symptoms of anemia include shortness of breath, fatigue, pale skin color, chills, rapid heart rate, depression, and reduced quality of life. If left unchecked,

hemolytic anemia can lead to jaundice, dark urine, and an enlarged spleen. In severe cases, cardiac arrest (heart attack) can occur. This is why it is important for people considering pegylated interferon plus ribavirin therapy to have a physical exam before starting treatment to rule out any potential heart problems that could be made worse by ribavirin.

Diagnosis

A simple blood test called a complete blood count (CBC) measures various components of blood including red cells, white cells, and platelets. The portion of the blood test that measures red blood cells and their oxygen-carrying capacity, hemoglobin and hematocrit, is used to diagnose anemia.

Normal Ranges

	Male Ranges	Female Ranges
Hemoglobin	13.5-17.5 g/dL	12.0-16.0 g/dL
Hematocrit	42.0-54.0 %	37-47 %

Source: www.rush.edu

A low hemoglobin or hematocrit measurement indicates anemia.

Treatment

There are two approaches for treating hemolytic anemia: ribavirin dose reduction and use of a growth factor hormone (erythropoietin) to promote red blood cell production. (It should be noted that *ribavirin-induced hemolytic anemia cannot be treated by eating iron rich foods or taking iron supplements.*)

In general, ribavirin dose reduction or the use of red blood cell growth factors are recommended when the hemoglobin level goes below 10 g/dL or if there is a significant drop in hemoglobin levels over a short period of time. People with cardiac disease should be monitored very carefully when the hemoglobin level starts to drop. Ribavirin treatment may have to be discontinued if the drop in hemoglobin level is substantial. The general recommendation is to stop taking ribavirin or HCV therapy altogether if the hemoglobin level drops below 8.5 g/dL.

Some medical experts believe that ribavirin dose reductions should be avoided since maintaining the ribavirin dosage is

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especially important during the first 12 weeks of treatment to help prevent relapse and achieve a sustained virologic response (SVR).

Erythropoietin (EPO; brand name Epogen or Procrit) promotes red blood cell production in the bone marrow. Clinical studies using EPO to treat HCV treatment-induced hemolytic anemia have shown an average increase in hemoglobin levels of 2.0 g/dL and an improvement in patients' quality of life. EPO is FDA-approved for chronic renal (kidney) failure, cancer chemotherapy, HIV therapy, and use before elective non-cardiac surgery. Although EPO is commonly used to treat ribavirin-induced hemolytic anemia, it has not been approved by the FDA for this purpose, and obtaining insurance coverage or reimbursement may be difficult.

Warning: A warning has been added to the EPO package inserts about serious and life threatening complications that may be related to the use of EPO. To minimize these risks it is recommended that only the lowest dose needed is used for a limited amount of time.

It is important to notify and work closely with your health-care provider if you notice any signs or symptoms of anemia in order to make your HCV treatment outcome as successful as possible.

For more information about hepatitis C, hepatitis B and HCV coinfections, please visit www.hcvadvocate.org.

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The information in this fact sheet is designed to help you understand and manage HCV and is not intended as medical advice. All persons with HCV should consult a medical practitioner for diagnosis and treatment of HCV.

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