URL of this page: //medlineplus.gov/ency/article/003683.htm

Erythropoietin test

The erythropoietin test measures the amount of a hormone called erythropoietin (EPO) in blood.

The hormone tells stem cells in the bone marrow to make more red blood cells. EPO is made by cells in the kidney. These cells release more EPO when the blood oxygen level is low.

How the Test is Performed

A blood sample is needed.

How to Prepare for the Test

No special preparation is necessary.

How the Test will Feel

When the needle is inserted to draw blood, some people feel moderate pain. Others feel only a prick or stinging sensation. Afterward, there may be some throbbing.

Why the Test is Performed

This test may be used to help determine the cause of anemia, polycythemia (high red blood cell count) or other bone marrow disorders.

A change in red blood cells will affect the release of EPO. For example, people with anemia have too few red blood cells, so more EPO is produced.

Normal Results

The normal range is 2.6 to 18.5 milliunits per milliliter (mU/mL).

The examples above are common measurements for results of these tests. Normal value ranges may vary slightly among different laboratories. Some labs use different measurements or test different samples. Talk to your health care provider about the meaning of your specific test result.

What Abnormal Results Mean

Increased EPO level may be due to secondary polycythemia. This is an overproduction of red blood cells that occurs in response to an event such as low blood oxygen level. The condition may occur at high altitudes or, rarely, because of a tumor that releases EPO.

Lower-than-normal EPO level may be seen in chronic kidney failure, anemia of chronic disease, or polycythemia vera.

Risks

Risks associated with having blood drawn are slight, but may include:

- Excessive bleeding
- Fainting or feeling lightheaded
- Hematoma (blood accumulating under the skin)
- Infection (a slight risk any time the skin is broken)

Alternative Names

Serum erythropoietin; EPO

References

Gotlib J. Polycythemia vera, essential thrombocythemia, and primary myelofibrosis. In: Goldman L, Cooney KA, eds. *Goldman-Cecil Medicine*. 27th ed. Philadelphia, PA: Elsevier; 2024:chap 152.

Kaushansky K. Hematopoiesis and hematopoietic growth factors. In: Goldman L, Cooney KA, eds. *Goldman-Cecil Medicine*. 27th ed. Philadelphia, PA: Elsevier; 2024:chap 142.

Murphy MF, Pasi JK, Roy N. Haematology. In: Feather A, Randall D, Waterhouse M, eds. *Kumar and Clark's Clinical Medicine*. 10th ed. Philadelphia, PA: Elsevier; 2021:chap 16.

Review Date 8/28/2023

Updated by: Todd Gersten, MD, Hematology/Oncology, Florida Cancer Specialists & Research Institute, Wellington, FL. Review provided by VeriMed Healthcare Network. Also reviewed by David C. Dugdale, MD, Medical Director, Brenda Conaway, Editorial Director, and the A.D.A.M. Editorial team.