

Information Handout

Provided by the National Anemia Action Council, Inc., a nonprofit corporation.



Anemia & Kidney Disease

What is anemia?

Anemia is a below-normal level of hemoglobin* or hematocrit*. Hemoglobin is the protein in red blood cells that carries oxygen to all parts of the body. Anemia can be a temporary condition, a consequence of other health conditions, or it can be a chronic problem. People with mild anemia may not have any symptoms or may have only mild symptoms. People with severe anemia may have problems carrying out routine activities and can feel tired or experience shortness of breath with activity.¹

How common is anemia in people with kidney disease?

The chance of developing anemia increases as kidney disease gets worse. A study has shown anemia affected 28% of people with mild kidney disease and 87% of people with severe kidney disease.^{2,3}

What causes anemia in people with kidney disease?

Diseased kidneys may not produce enough erythropoietin (EPO), a hormone that regulates red blood cell production. Less EPO in turn means fewer red blood cells and their protein hemoglobin to deliver oxygen to your body's organs. If there are not enough red blood cells, your body does not get the right amount of oxygen, resulting in anemia. Other factors that can contribute to anemia in patients with kidney disease include iron deficiency, some vitamin deficiencies, and the effects of poor nutrition or inflammation.

What are the effects of untreated anemia in kidney disease?

People who have both kidney disease and anemia have an increased risk of death, stroke, or heart failure.^{4,5} Anemic children with kidney disease are also at an increased risk for hospitalization.⁶ The chance of early death is even higher for anemia sufferers who, in addition to kidney disease, have heart failure and/or diabetes.⁷ Lack of oxygen makes a heart work harder, so the muscles in its left-lower chamber may get too thick. This condition is called left ventricular hypertrophy, and can even occur in people with early kidney disease, and increases the risk of people having a heart attack or dying.⁸⁻¹⁰ Treatment of anemia in patients with kidney disease has not been proven to increase lifespan.

How do I know if I have anemia?

The best way to determine if you have anemia is to discuss your blood counts and changes in hemoglobin and hematocrit with your doctor. Symptoms usually develop when anemia is moderate to severe, and can include fatigue, weakness, pale skin, chest pain, dizziness, irritability, numbness or coldness in your hands and feet, trouble breathing, a fast heartbeat, and headache. In people with chronic kidney disease, anemia can occur in the very earliest stages of the disease, and it becomes more severe as the disease progresses.² It is important to see your doctor on a regular basis in order to be tested for possible anemia.

What treatments are available to help me?

If your body is low in stored iron or vitamins, it is important to treat these deficiencies first. A healthy, iron-rich diet can help increase iron levels, but your doctor may recommend that you also take an iron supplement. If you have a vitamin deficiency your doctor may recommend a supplement for this as well. Since anemia in kidney disease is usually caused by erythropoietin deficiency, improvement of hemoglobin and hematocrit levels are often achieved with drugs that stimulate red blood cell production. Noteworthy though are recent studies which suggest that it is best not to try to correct the anemia to normal levels.¹¹ Close communication with your doctor will help him or her provide the treatment that is best for you based on what is causing the anemia.

Glossary

Erythropoietin: Hormone that regulates red blood cell production

Heart failure: Condition that causes weakening of the heart muscle which impairs its ability to pump enough blood to the body. This can cause fluid retention (swelling of the feet, fluid in lungs, shortness of breath, and other symptoms)

Hematocrit: Percentage of red blood cells in a blood sample

Hemoglobin: Protein carried by red blood cells that transports and delivers oxygen throughout your body

Left ventricular hypertrophy: Enlargement of the left-lower chamber of the heart

Stroke: Sudden disruption of blood flow in the brain

Vitamin deficiency: Shortage or low levels of vitamins

*Normal Lab Values: Normal hemoglobin >12 g/dL for women, >13 g/dL for men; normal hematocrit >36% for women, >39% for men.

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Anemia & Kidney Disease ...Continued

References

1. National Anemia Action Council. Anemia: A Hidden Epidemic. Los Angeles, CA: HealthVizion Communications, Inc; 2002.
2. Kausz AT, et al. J Am Soc Nephrol. 2001;12:1501-1507.
3. Kausz AT, et al. Dis Manage Health Outcomes. 2002;10:505-513.
4. Foley RN, et al. Am J Kidney Dis. 1996;28:53-61.
5. Abramson JL, et al. Kidney Int. 2003;64:610-615.
6. Staples AO, et al. Clin J Am Soc Nephrol. 2008 Dec 3.
7. Collins A, et al. Adv Stud Med. 2003;3(3C);S14-S17.
8. Levin A, et al. Am J Kidney Dis. 1999;34:125-134.
9. Casale PN, et al. Ann Intern Med. 1986;105:173-178.
10. Silberberg JS, et al. Kidney Int. 1989;36:286-290.
11. Singh A, et al. New Eng J Med 2006;355:2085-2098.
12. World Health Organization. Worldwide Prevalence of Anaemia 1993-2005: WHO Global Database on Anaemia. Edited by Bruno de Benoist, Erin McLean, Ines Egli and Mary Cogswell.

NAAC's Online Resources for Patients & Consumers (www.anemia.org)

Information Handouts – Educational handouts describing anemia caused by different conditions including: aging, cancer, diabetes, vitamin deficiency, chronic kidney disease and more; free print or download access

Frequently Asked Questions – Answers to patients' common questions regarding anemia

Anemia Glossary – Definitions for medical terms relating to anemia which are used in NAAC's educational material

Feature Articles – Short articles covering anemia-related topics for patients, caregivers and allied healthcare providers

Anemia Watch – Our free quarterly e-newsletter covering current anemia-related topics and news

Anemia Symptoms Quiz – Printable questionnaire to fill out and take to a physician

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