CONDITION

Hemolytic crisis

A hemolytic crisis is a sudden episode of rapid red blood cell destruction that can cause severe anemia.

WHAT IT IS
Sudden, rapid destruction of red blood cells

BODY SYSTEM
Blood and circulation

MAIN SYMPTOMS
Fatigue, jaundice, dark urine, shortness of breath

WHAT CAUSES IT
Inherited disorders, immune attacks, infections, medicines, or transfusion reactions

HOW IT IS DIAGNOSED
Blood counts, hemolysis markers, blood smear, antiglobulin testing

MAIN TREATMENT
Supportive care and treatment of the cause

CAN IT BE CURED?
Sometimes - trigger removal ends episode

IS IT AN EMERGENCY?
Sometimes - severe breathlessness, fainting, or chest pain

LONG-TERM OUTLOOK
Often good when the underlying cause is controlled

Overview

A hemolytic crisis is an episode in which red blood cells are destroyed much faster than usual. This process is called hemolysis . It can cause a rapid fall in hemoglobin, the protein in red blood cells that carries oxygen.

A crisis is a condition or event, not a single underlying disease. It can happen in people with inherited blood disorders, immune conditions, certain infections, or reactions to medicines or blood transfusions. Sometimes it is the first sign of a blood disorder.

Red blood cells normally last about 120 days. During hemolysis, they may break down in the bloodstream or be removed early by the spleen and liver. The bone marrow tries to replace them, but during a crisis it may not keep up. The resulting anemia can reduce the amount of oxygen reaching the body's tissues.

Some episodes are mild and improve after the trigger is addressed. Others cause severe anemia, kidney problems, or strain on the heart and need urgent hospital treatment.

Symptoms

Symptoms can develop over hours or several days. Their severity depends on how quickly red blood cells are being destroyed, how low the hemoglobin falls, and whether you have heart, lung, or kidney problems.

Possible symptoms include:

Jaundice occurs because red blood cells release bilirubin as they break down. Bilirubin is a yellow substance normally processed by the liver.

Dark urine may be caused by hemoglobin released directly into the urine. It can also have other causes, so testing is needed rather than judging by colour alone.

- Sudden or worsening tiredness, weakness, dizziness, or headache
- Pale skin, lips, or nail beds
- Yellow skin or eyes, called jaundice
- Dark brown, red, or tea-coloured urine
- Shortness of breath, rapid heartbeat, or reduced exercise tolerance
- Pain in the abdomen or back
- Fever or chills when infection or a transfusion reaction is involved

Causes and risk factors

A hemolytic crisis can occur when an existing condition becomes more active or when a new trigger suddenly damages red blood cells.

Inherited red blood cell disorders are important causes. These include sickle cell disease, hereditary spherocytosis, and glucose-6-phosphate dehydrogenase deficiency, usually called G6PD deficiency. In G6PD deficiency, certain infections, foods, chemicals, or medicines can trigger hemolysis.

In autoimmune hemolytic anemia, the immune system mistakenly targets red blood cells. This may occur by itself or alongside another condition, such as lupus, a blood cancer, or an infection. Some medicines can also cause immune destruction of red blood cells.

Infections may trigger hemolysis in someone with an inherited disorder. Malaria and babesiosis

can also destroy infected red blood cells directly.

A hemolytic transfusion reaction occurs when transfused red blood cells are attacked, usually because of incompatibility with antibodies in the recipient's blood. An acute reaction can begin during or soon after a transfusion. A delayed reaction may appear days or weeks later.

Other possible causes include severe burns, toxins, artificial heart valves, and damage to red blood cells within very small blood vessels.

A hemolytic crisis is not the same as an aplastic crisis , in which the bone marrow temporarily stops making enough red blood cells. It also differs from splenic sequestration, where blood cells become trapped in an enlarged spleen. Blood tests help tell these problems apart.

Diagnosis

Diagnosis usually begins with your symptoms, medical history, examination, and blood tests. Tell the healthcare team about inherited blood conditions, recent infections, new medicines, transfusions, travel, and possible chemical or food exposures.

A complete blood count measures hemoglobin and other blood cells. A reticulocyte count measures young red blood cells. It is often high during hemolysis because the bone marrow is trying to replace lost cells. A low count may suggest that the marrow is also being suppressed.

Other tests look for evidence of red blood cell breakdown:

No single result confirms every type of hemolytic crisis. Results must be interpreted together. Further testing may look for G6PD deficiency, infections, abnormal hemoglobin, inherited cell membrane problems, or other causes.

If the episode is severe, tests may also check kidney function, heart strain, blood clotting, and blood type in case a transfusion is needed.

- Bilirubin and lactate dehydrogenase, or LDH, may be raised
- Haptoglobin, a protein that binds free hemoglobin, may be low
- A blood smear can show changes in the size and shape of blood cells
- Urine testing may detect hemoglobin or other breakdown products
- A direct antiglobulin test can identify antibodies attached to red blood cells

Treatment and management

Treatment focuses on keeping enough oxygen circulating while stopping or controlling the

cause of hemolysis. Care may take place in hospital when anemia is severe, symptoms are progressing, or the cause is uncertain.

Supportive treatment may include oxygen when blood oxygen is low, fluids when appropriate, and close monitoring of the heart, urine output, and blood tests. A red blood cell transfusion may be needed when anemia is severe or causing significant symptoms. The decision is based on the whole situation, not one hemoglobin number alone.

Treatment of the cause is equally important. For example:

People who receive repeated transfusions may need specially matched blood, particularly if they have developed red blood cell antibodies.

Folic acid is sometimes used when the bone marrow is continually producing replacement cells. Iron should not be taken simply because anemia is present. Hemolytic anemia is not usually caused by iron deficiency, and repeated transfusions can lead to excess iron.

- Immune hemolysis may be treated with corticosteroids or other immune-directed treatments
- A suspected triggering medicine may need to be stopped or changed under medical guidance
- A bacterial or parasitic infection may require specific antimicrobial treatment
- A transfusion reaction requires the transfusion to be stopped immediately and investigated
- Selected recurring inherited or immune conditions may be treated with removal of the spleen or other specialist therapies

Complications

Rapid hemolysis can cause severe anemia, low blood pressure, fainting, or strain on the heart. Free hemoglobin released into the bloodstream can contribute to acute kidney injury, especially during extensive intravascular hemolysis.

Long-term or repeated hemolysis can raise the risk of bilirubin gallstones. Repeated transfusions may lead to iron overload or make future blood matching more difficult because new antibodies can develop.

The risk of recurrence is determined mainly by the underlying cause. An inherited condition remains present after the crisis has ended, while a one-time medicine or transfusion reaction may not recur if the trigger is avoided.

Prevention

The inherited disorders that can cause hemolytic crises cannot currently be prevented. However, some episodes may be avoided by understanding and reducing known triggers.

If you have G6PD deficiency, use the medicine and food avoidance information provided for your specific diagnosis. Do not rely on a general online list, because the evidence and risk can differ between substances.

If you have previously formed blood group antibodies, make sure this information is recorded before future transfusions. Carrying any transfusion or antibody card you have been given can help.

Prompt assessment of infections may reduce complications in people with chronic hemolytic disorders. Follow the vaccination and fever plan recommended for your condition, especially if your spleen has been removed or does not work normally.

Not every crisis can be predicted or prevented, even with careful management.

Living with it and what to expect

A hemolytic crisis may settle over days or weeks once red blood cell destruction slows and the bone marrow replaces lost cells. Tiredness and reduced stamina can continue after the main trigger has been controlled. Follow-up blood tests help show whether hemoglobin and other markers are returning toward their usual levels.

What happens over months and years depends on the cause. A person with a temporary medicine reaction may have no further episodes once the medicine is avoided. Autoimmune hemolysis can improve, persist, or return. Inherited blood disorders remain lifelong and may cause repeated crises, although the frequency and severity are different for each person.

Many people are well between episodes, particularly when their underlying condition is stable. Others need regular blood tests, medicines, transfusions, or specialist follow-up. A personal plan can explain what symptoms to watch for and how quickly to seek help.

Before surgery or pregnancy, tell the relevant healthcare team about any hemolytic disorder, previous crisis, blood group antibodies, or transfusion reactions. These situations may require additional blood testing and planning.

When to get medical help

Seek emergency help for symptoms that may mean severe anemia, reduced oxygen delivery, or a serious transfusion reaction:

If symptoms begin during a transfusion, tell the healthcare staff immediately. Do not wait for the transfusion to finish.

Arrange urgent same-day assessment for new jaundice, dark urine, marked tiredness, a racing heartbeat, or worsening breathlessness, particularly if you have a known blood disorder or recently had a transfusion. Fever also needs prompt assessment if you have no spleen, reduced spleen function, or a care plan that identifies fever as urgent.

Routine follow-up remains important after symptoms improve. Blood tests may be needed to confirm that hemolysis has stopped, anemia is recovering, and no kidney or transfusion-related complications have developed.

- Severe or rapidly worsening shortness of breath
- Chest pain, fainting, new confusion, or extreme weakness
- Blue, grey, or very pale lips or skin
- Very little urine, severe back pain, or rapidly darkening urine
- Fever, chills, breathing difficulty, or pain during a blood transfusion

Common questions

Is a hemolytic crisis the same as a sickle cell crisis?

No. Sickle cell disease can cause hemolysis, but the term "sickle cell crisis" often refers to a painful vaso-occlusive episode caused by blocked blood flow. Hemolytic, aplastic, and splenic sequestration episodes are different complications and may need different treatment.

How long does a hemolytic crisis last?

The active destruction may last hours, days, or longer. Recovery can take several weeks while the bone marrow replaces red blood cells. The timing is affected by the cause, the severity of anemia, and whether the trigger can be controlled.

Will I need a blood transfusion?

Not everyone does. Transfusion is more likely when anemia is severe, worsening quickly, or causing breathlessness, fainting, chest symptoms, or organ problems. Previous antibodies and transfusion reactions affect how blood is selected.

Can emotional stress cause a hemolytic crisis?

Emotional stress alone is not a usual direct cause. Physical stress from infection, surgery, or

another illness can trigger hemolysis in some underlying conditions.

Should I take iron for the anemia?

Not unless testing shows iron deficiency or it has been specifically recommended. Hemolysis destroys red blood cells but does not necessarily remove iron from the body. Unneeded iron can build up, especially after repeated transfusions.

Is a hemolytic crisis contagious?

No. Hemolysis itself cannot spread between people. An infection that triggered the episode may be contagious, depending on the infection.

Sources

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