

TUMOR LYSIS SYNDROME (TLS)

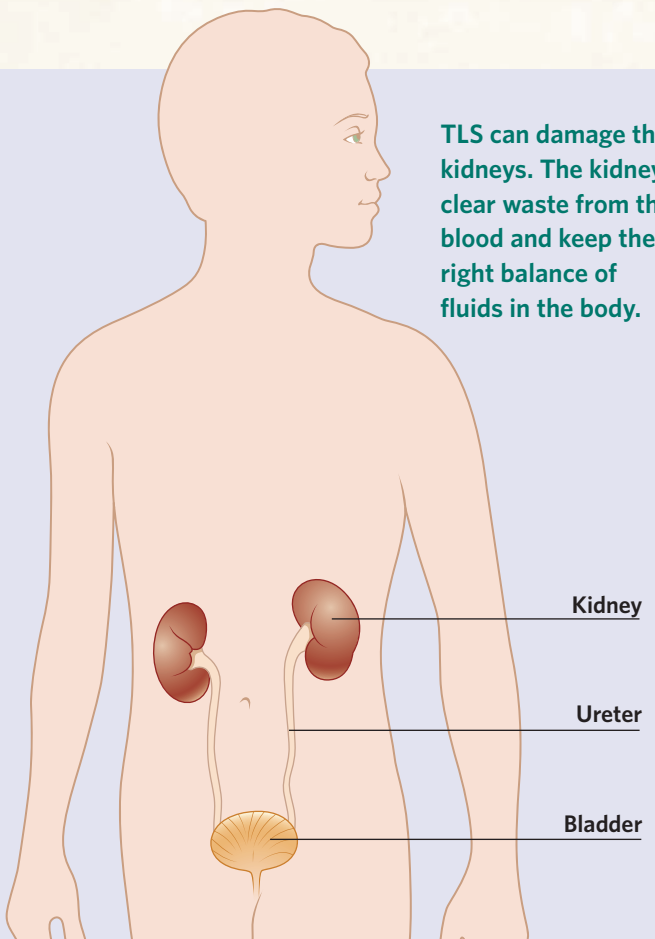
»» What is TLS?

During treatment, cancer cells may be killed off faster than the body can handle. This can cause a serious problem called **tumor lysis syndrome**, or **TLS**. TLS can damage the kidneys, the heart, and other organs. If not treated promptly, it can be deadly. Knowing the symptoms of TLS can help patients get treated at an early stage if TLS does occur. **TLS not only can be treated, it often can be prevented by treating high-risk patients before they start chemotherapy.**

Who may be affected?

Children and young adults who have fast-growing cancers or large tumors that respond quickly to chemotherapy. These cancers include:

- Burkitt lymphoma and high-grade lymphomas
- Acute and chronic leukemias
- Low-grade lymphoma, breast cancer, small-cell lung cancer, or seminoma



TLS can damage the kidneys. The kidneys clear waste from the blood and keep the right balance of fluids in the body.

What are the symptoms of TLS?

Symptoms of TLS may be present at diagnosis of cancer or show up within 1 to 5 days of starting chemotherapy. The medical team will watch closely for TLS signs and symptoms. Although there are no TLS-specific symptoms, any of these symptoms may happen with TLS:

- Nausea
- Vomiting
- Diarrhea
- Loss of appetite
- Decrease in urination
- Swelling or puffiness
- Shortness of breath
- Sluggishness or tiredness
- Pain on the side of the body near the abdomen
- Muscle cramps or weakness
- Joint pain or swelling
- Itching, tingling, or numbness
- Mental confusion

Knowing when it is TLS

Patients at risk for TLS may not have symptoms early on. And some symptoms that are linked to TLS may in fact be caused by the cancer itself or the chemotherapy. That is why the medical team also looks at the patient's medical history and lab test results to figure out if a person has TLS.

How does TLS occur?

When large numbers of cancer cells are killed off very quickly, it can be too much for the kidneys to handle. Chemical waste released from the dead cancer cells can spill into the bloodstream. The waste makes the kidneys work too hard or stop working, so the body can't get rid of the extra chemicals. This can lead to a buildup of fluids in the body. This upsets the body's normal chemical balance and puts stress on major organs like the heart, lungs, and kidneys. **If it is caught early, TLS can be treated, and severe organ damage can be prevented.**

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»» How can TLS be prevented?

TLS can often be prevented by treating patients who are at risk before they start chemotherapy. Some medicines can increase the risk for TLS. It is important to tell the doctor about any medicines the patient is taking. Patients will also be watched more closely if lab tests show they have abnormal levels of certain chemicals in their blood. For example:

- A high level of uric acid in the blood can be a sign that the kidneys are not working properly. Fluids going in and out of the body will be carefully measured
- A high level of potassium can cause heart problems
- A drop in the level of calcium in the blood could cause muscle cramps and sometimes serious heart problems

Treatment to manage or prevent TLS may include:

Intravenous (IV) hydration (fluids)	Given to help the kidneys make enough urine to break up and rid the body of uric acid and other chemicals	
Diuretic medicines	Used to prevent fluid from building up in the lungs (lung edema) and to protect the kidneys from getting blocked by chemical waste, such as uric acid	
Medicines used for treating components of TLS	Used to lower high levels of uric acid (either by blocking its production or by eliminating existing uric acid), potassium, and phosphate. This helps restore the proper balance of chemicals in the body	

How is TLS treated?

TLS can quickly become very serious.

Urgent treatment with IV fluids and medicines is needed to restore the proper balance of chemicals and prevent further organ damage. **Dialysis**, which removes waste from the body, may be needed if kidneys fail. Most patients treated for TLS do regain use of their kidneys and can go off dialysis.

It is important to watch for any sign of an allergic reaction to the medicines given for TLS (such as chest pain, hives, or shortness of breath) and report symptoms promptly to the medical team.

Where to learn more

The Leukemia & Lymphoma Society
www.lls.org
 800-955-4572

Oncology Nursing Society
www.ons.org

**Young People With Cancer:
 A Handbook for Parents**
www.nci.nih.gov/cancertopics/youngpeople
 800-4-CANCER (422-6237)