

Tumor Lysis Syndrome

Tumor lysis syndrome (TLS) is a condition that occurs when a large number of cancer cells die within a short period, releasing their contents into the blood.

How Does TLS Affect the Body?

When cancer cells break down quickly in the body, levels of uric acid, potassium, and phosphorus rise faster than the kidneys can remove them. This causes TLS. Excess phosphorus can "sop up" calcium, leading to low levels of calcium in the blood. Changes in blood levels of uric acid, potassium, phosphorus, and calcium can affect the functioning of several organs, especially the kidneys, and also the heart, brain, muscles, and gastrointestinal tract.

Who Develops TLS?

Not all cancer patients are at equal risk of developing TLS. Patients with a large "tumor burden" of cancer cells and/or tumors that typically have rapidly dividing cells, such as acute leukemia or high-grade lymphoma, as well as tumors that are highly responsive to therapy, are at greatest risk of developing TLS. TLS can occur spontaneously (before cancer treatment) but is more common within a week of starting treatment. TLS is not limited to patients receiving traditional chemotherapy; it can also occur in patients receiving steroids, hormonal therapy, targeted therapy, or radiation therapy. Patients who are dehydrated and those with existing kidney dysfunction are at higher risk of developing TLS.

What Are the Symptoms of TLS, and How Is It Diagnosed?

Symptoms are generally nonspecific and can include:

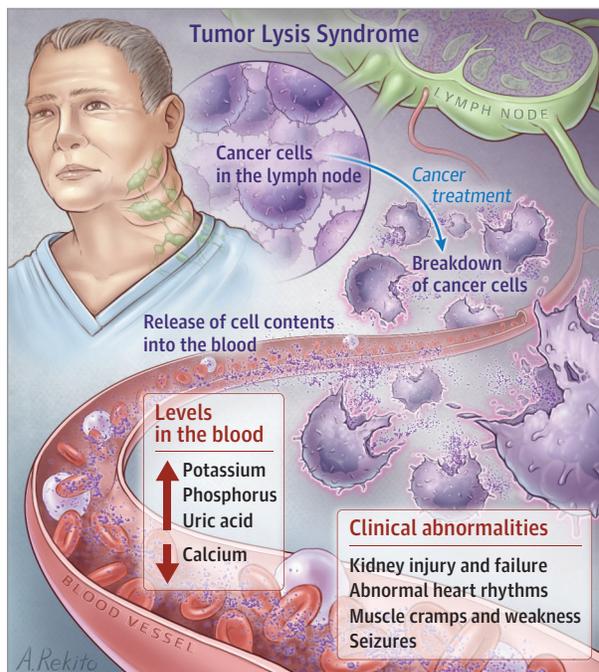
- Nausea with or without vomiting
- Lack of appetite and fatigue
- Dark urine, reduced urine output, or flank pain
- Numbness, seizures, or hallucinations
- Muscle cramps and spasms
- Heart palpitations

Kidney failure and death can occur, especially if TLS is left untreated.

TLS is diagnosed based on blood tests, along with signs and symptoms. Its onset may be subtle, with only a few abnormal laboratory values, but it can also present with frank kidney and organ failure.

Can TLS Be Prevented?

Certain measures can reduce the chances of developing TLS. Your clinician will consider results of blood tests and characteristics of the cancer to determine your risk of developing TLS and which preventive measure(s) to use. Intravenous fluids can help the kidneys to flush out toxins in the urine. Medications such as allopurinol and rasburicase reduce uric acid levels in the blood and may be prescribed.



How Is TLS Treated?

Even with preventive measures, TLS can still develop. Patients at high risk of TLS undergo bloodwork and clinical monitoring before and during therapy to ensure early diagnosis if it develops. Treatment is similar to the preventive measures, including intravenous fluids, allopurinol, and especially rasburicase. Patients may require admission to the intensive care unit. Bloodwork is repeated frequently to assess electrolyte levels and kidney damage, and the heart rhythm and urine output are closely monitored. Careful correction of electrolyte imbalances is required. Some patients with severe kidney injury may require temporary hemodialysis.

FOR MORE INFORMATION

Canadian Cancer Society: Tumor Lysis Syndrome
<http://www.cancer.ca/en/cancer-information/diagnosis-and-treatment/managing-side-effects/tumour-lysis-syndrome/?region=on>

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