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Opinion Article

Complications of Tumour Lysis Syndrome in the Body

Xuelan Zheng*

Department of Oncology, Zhengzhou University, Henan, China

DESCRIPTION

Tumor Lysis Syndrome (TLS) is a disorder that arises when a large number of cancer cells die within a short period, releasing their contents into the blood stream. Tumor lysis syndrome is caused by the enormous release of intracellular ions such as phosphorus, potassium, and nucleic acids that have been metabolised to uric acid. The main organ responsible for the elimination of these substances is the kidney.

Complications

When cancer cells break down quickly in the body, levels of uric acid, potassium, and phosphorus increase faster than the kidneys can eliminate them. This leads to tumour lysis syndrome. An additional amount of phosphorus can absorb calcium, which leads to reducing the levels of calcium in the blood stream. Changes in blood levels of uric acid, potassium, calcium, and phosphorus can affect the functioning of various organs, mainly the kidneys, and also the muscles, heart, brain, and gastrointestinal tract. All cancer patients are not at equal risk of developing tumour lysis syndrome. Patients with a large number of cancer cells or tumours that usually have rapidly dividing cells, such as acute high-grade lymphoma or leukemia, as well as tumours that are highly reactive to therapy, are at the greatest risk of developing TLS. The TLS can occur suddenly (before cancer treatment) but is more common within a week of starting treatment. TLS is not restricted to patients receiving traditional chemotherapy; it can also occur in patients receiving hormonal therapy, steroids, radiation therapy, or targeted therapy. Patients who are dehydrated and whose kidney dysfunction already exists are at a higher risk of developing TLS. Tumor Lysis Syndrome (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 be present with frank kidney and organ failure. Symptoms are generally common and include lack of appetite and fatigue, dark urine, reduced urine output, or flank pain, Nausea with or without vomiting, Numbness, seizures, or hallucinations, heart palpitations, muscle cramps and spasms. If tumour lysis syndrome is left untreated, it leads to kidney failure and death. TLS is diagnosed based on blood tests along with symptoms and signs. Its onset may be indirect, with only a rare abnormal laboratory value, but it can also present with organ failure and frank kidney failure.

CONCLUSION

Certain precautions can help to reduce the risk of developing TLS. The clinician will use blood test results and cancer characteristics to determine the risk of developing TLS and which preventive measures to use. Toxins in the urine can be washed out by intravenous fluids. Allopurinol and rasburicase, which reduce uric acid levels in the blood, may be prescribed. TLS can develop even when precautions are taken. Patients at high risk of TLS undergo blood tests and clinical monitoring before and during treatment to ensure an early diagnosis if it occurs. Treatment is similar to prevention and includes intravenous fluids, allopurinol, and, most commonly, rasburicase. Patients may need to be admitted to the intensive care unit. Blood tests are performed on a regular basis to analyze electrolyte levels and kidney damage, and the heart rate and urine output are closely monitored. Electrolyte imbalances must be carefully corrected. Some patients with severe kidney damage may require hemodialysis for a short period of time.

Correspondence to: Xuelan Zheng, Department of Oncology, Wuhan University, Wuhan, China, E-mail: xuelanzheng@ustb.edu.cn

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