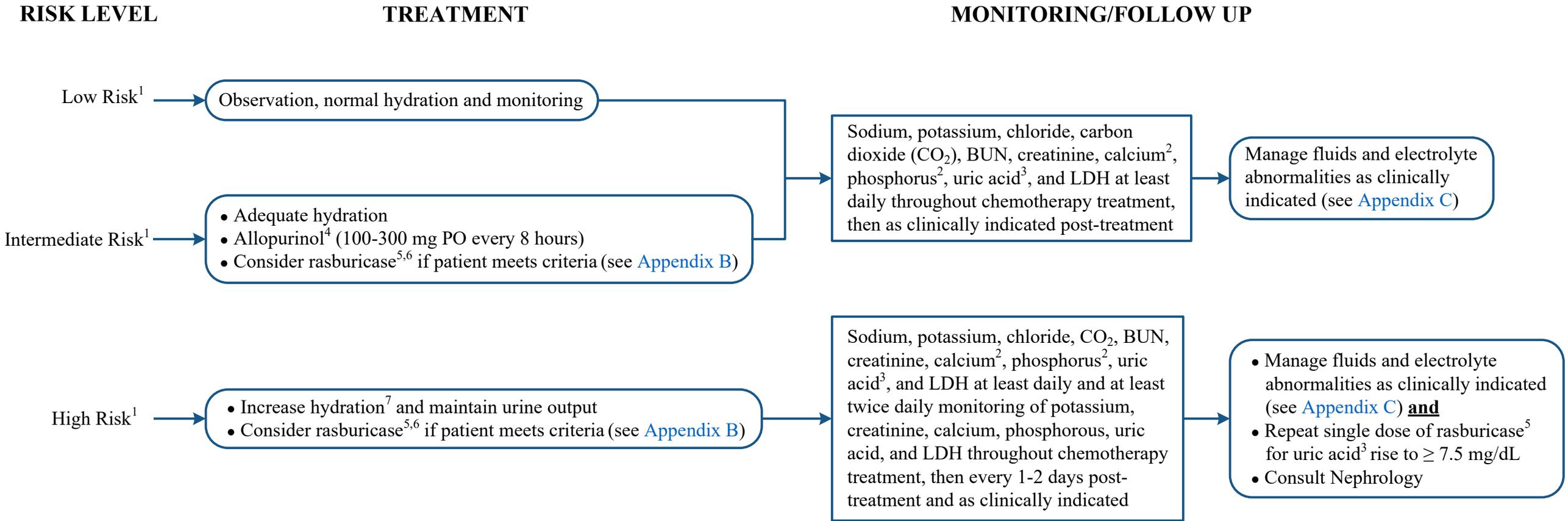


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Note: These patients should NOT be on electrolyte replacement protocols. Use of sodium bicarbonate for alkalinization of urine is currently not recommended for prevention and treatment of TLS.

¹ See [Appendix A](#) for stratification based on disease type

² If calcium-phosphorus product ≥ 50 mg²/dL², ensure hydration is maintained and alkalinization is discontinued. Consider consulting Nephrology service, especially if the calcium-phosphorus product continues to rise > 60 mg²/dL².

³ Blood specimens for uric acid levels should kept on ice after collection and prior to testing, and processed immediately

⁴ Allopurinol dose needs to be adjusted in renal failure. Maximum daily dose of allopurinol is 800 mg/day. Dose adjustments may be necessary if allopurinol is used with other drugs (e.g., 6- mercaptopurine, azathioprine, cyclophosphamide, thiazide and loop diuretics, and warfarin) – Refer to MD Anderson Formulary for a complete list of interactions. Allopurinol should be initiated 24-48 hours prior to chemotherapy when possible.

⁵ Rasburicase must be given 4 hours prior to chemotherapy. For adult patients, rasburicase is to be given at a fixed dose of 3 mg per institutional formulary restrictions; repeat doses are permitted if patient meets restrictions based on repeat lab values prior to each dose.

⁶ Rasburicase is contraindicated in glucose-6 phosphate dehydrogenase deficient patients, known hypersensitivity reactions, hemolytic anemia or methemoglobinemia. Allopurinol should be substituted in these patients.

⁷ Patients with established TLS or high risk and/or renal insufficiency should be closely monitored and have access to Nephrology service and Intensive Care Unit (ICU) in the event that dialysis is required

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APPENDIX A: Risk Assessment Based on Disease Type¹

LOW RISK	INTERMEDIATE RISK	HIGH RISK
<p>Leukemia</p> <ul style="list-style-type: none"> • CLL receiving only alkylating agents • CML (excluding blast crisis) <p>Lymphoma</p> <ul style="list-style-type: none"> • Anaplastic large-cell lymphoma • DLBCL with LDH within normal limits (WNL) • Mantle cell lymphoma (blastoid variants) with LDH WNL • Peripheral T-cell lymphoma with LDH WNL • T-cell lymphoma with LDH WNL • Transformed lymphoma with LDH WNL • Cutaneous T-cell lymphoma • Follicular lymphoma • Hodgkin lymphoma • Mantle cell lymphoma (non-blastoid variants) • Marginal zone B-cell lymphoma • Small lymphocytic lymphoma <p>Other</p> <ul style="list-style-type: none"> • Solid tumors (excluding neuroblastomas, germ-cell tumors, and small cell lung cancer) • Multiple myeloma • MDS 	<p>Leukemia</p> <ul style="list-style-type: none"> • AML with WBC < 25 K/microliter • CLL receiving targeted and/or biological therapies <p>Lymphoma</p> <ul style="list-style-type: none"> • DLBCL with LDH greater than upper limit of normal (non-bulky²) • Mantle cell lymphoma (blastoid variants) with LDH greater than upper limit of normal (non-bulky²) • Peripheral T-cell lymphoma with LDH greater than upper limit of normal (non-bulky²) • T-cell lymphoma with LDH greater than upper limit of normal (non-bulky²) • Transformed lymphoma with LDH greater than upper limit of normal (non-bulky²) • Early stage lymphoblastic lymphoma with LDH less than 2 times upper limit of normal <p>Other</p> <ul style="list-style-type: none"> • Neuroblastoma • Germ-cell tumors • Small cell lung cancer 	<p>Leukemia</p> <ul style="list-style-type: none"> • ALL • AML with WBC ≥ 25 K/microliter • Burkitt's leukemia • CML-BC • CLL treated with venetoclax and ALC ≥ 25 K/microliter or bulky lymph nodes <p>Lymphoma</p> <ul style="list-style-type: none"> • Advanced Stage lymphoblastic lymphoma • Burkitt's lymphoma • DLBCL with LDH greater than upper limit of normal (bulky²) • Mantle cell lymphoma (blastoid variants) with LDH greater than upper limit of normal (bulky²) • Peripheral T-cell lymphoma with LDH greater than upper limit of normal (bulky²) • Transformed lymphoma with LDH greater than upper limit of normal (bulky²) <p>Other</p> <ul style="list-style-type: none"> • Myeloma with extramedullary disease and LDH greater than upper limit of normal • Myelofibrosis - Intermediate-2 risk or High-risk disease • Plasma cell leukemia

ALC = absolute lymphocyte count

ALL = acute lymphoblastic leukemia

AML = acute myeloid leukemia

CLL = chronic lymphocytic leukemia

CML = chronic myeloid leukemia,

CML-BC = chronic myeloid leukemia in blast crisis

DLBCL = diffuse large B-cell lymphoma

LDH = lactate dehydrogenase

MDS = myelodysplastic syndrome

MM = multiple myeloma

¹ Renal dysfunction elevates the patient to the next risk level

² Bulky disease is defined as any mass ≥ 7.5 cm

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APPENDIX B: Rasburicase Criteria for Use¹

Criteria for Use	Risk Factors
<ul style="list-style-type: none">• Uric acid > 7.5 mg/dL plus at least two risk factors or• Uric acid ≤ 7.5 mg/dL plus at least three risk factors	<ul style="list-style-type: none">• High risk disease (see Appendix A)• Creatinine > 1.3 mg/dL or > 50% increase from baseline• WBC > 50 K/microliter• Lactate dehydrogenase greater than 2 times the upper limit of normal (ULN)

¹ Criteria based on MD Anderson Formulary Restriction

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APPENDIX C: Suggested Guide for Management of Electrolyte Abnormalities

Abnormality	Management Recommendations
Hyperphosphatemia	
Moderate (phosphorus \geq 6 mg/dL)	<ul style="list-style-type: none"> • Restrict phosphorus intake (avoid IV and PO phosphorus; limit dietary sources) • If tolerating oral intake, administer phosphate binder (select one): <ul style="list-style-type: none"> ◦ Sevelamer (Renagel[®], Renvela[®]) 800-1,600 mg PO three times a day with meals ◦ Aluminum hydroxide 300-600 mg PO three times a day with meals (avoid with renal dysfunction)
Severe	Dialysis may be needed in severe cases
Hypocalcemia (calcium \leq 7 mg/dL or ionized calcium \leq 0.8 mmol/L)	
Asymptomatic	<ul style="list-style-type: none"> • No therapy • To avoid calcium phosphate precipitation, asymptomatic patients with acute hypocalcemia and hyperphosphatemia should not be given calcium repletion until phosphorous level has normalized
Symptomatic	Calcium gluconate 1 gram via slow IV infusion with EKG monitoring
Uremia (elevated BUN with altered mental status)	<ul style="list-style-type: none"> • Fluid and electrolyte management • Uric acid and phosphate management • Adjust doses for renally excreted medications • Dialysis

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APPENDIX C: Suggested Guide for Management of Electrolyte Abnormalities - continued

Abnormality	Management Recommendations
Hyperkalemia	
Moderate (potassium 5-6 mmol/L) and asymptomatic	<ul style="list-style-type: none"> • Restrict potassium intake (avoid IV and PO potassium; limit dietary intake) • EKG and cardiac rhythm monitoring • If tolerating oral intake, administer potassium binder¹ (select one): <ul style="list-style-type: none"> ○ Sodium polystyrene sulfonate (Kayexalate[®]) <ul style="list-style-type: none"> - 15-30 grams PO; repeat every 4 or 6 hours depending upon follow-up potassium levels ○ Patiromer sorbitex calcium (Veltassa[®]) <ul style="list-style-type: none"> - 8.4 grams once daily PO; may increase frequency based on potassium levels; adjust dose at ≥ 1-week intervals in increments of 8.4 grams (maximum dose: 25.2 grams/day) ○ Sodium zirconium cyclosilicate (Lokelma[®])² <ul style="list-style-type: none"> - 10 grams 3 times daily PO for up to 48 hours; adjust dose by 5 grams daily at 1-week intervals as needed based on potassium (maximum maintenance dose: 15 grams/day)
Severe (potassium > 6 mmol/L) and/or symptomatic	<p>Same as moderate, plus:</p> <ul style="list-style-type: none"> • Concurrent EKG changes: calcium gluconate 1 gram via slow IV infusion; may be repeated after 5-10 minutes if EKG changes persist • To temporarily shift potassium intracellularly <ul style="list-style-type: none"> ○ IV insulin and dextrose <ul style="list-style-type: none"> - 0.1 units/kg of regular insulin IV followed by 25-50 grams of D50W IV based on pre-treatment glucose. Hold D50W if glucose > 250 mg/dL. See IP Hyperkalemia order set. - Monitor blood glucose closely ○ Sodium bicarbonate <ul style="list-style-type: none"> - 50 mEq via slow IV infusion - Can be used if patient is acidemic (arterial pH < 7.35); however sodium bicarbonate and calcium should not be administered through the same lumen ○ Albuterol <ul style="list-style-type: none"> - 10-20 mg in 4 mL saline via nebulizer over 20 minutes or 10-20 puffs via MDI over 10-20 minutes - Avoid in patients with acute coronary disease

¹ Risk for use includes intestinal necrosis. High risk patient populations for intestinal necrosis include those with post-operative bowel motility disorders or with ileus, small or large bowel obstruction, or ulcerative colitis.

² Avoid sodium zirconium cyclosilicate (Lokelma[®]) in patients with volume overload; may worsen heart failure and/or pulmonary edema

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SUGGESTED READINGS

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