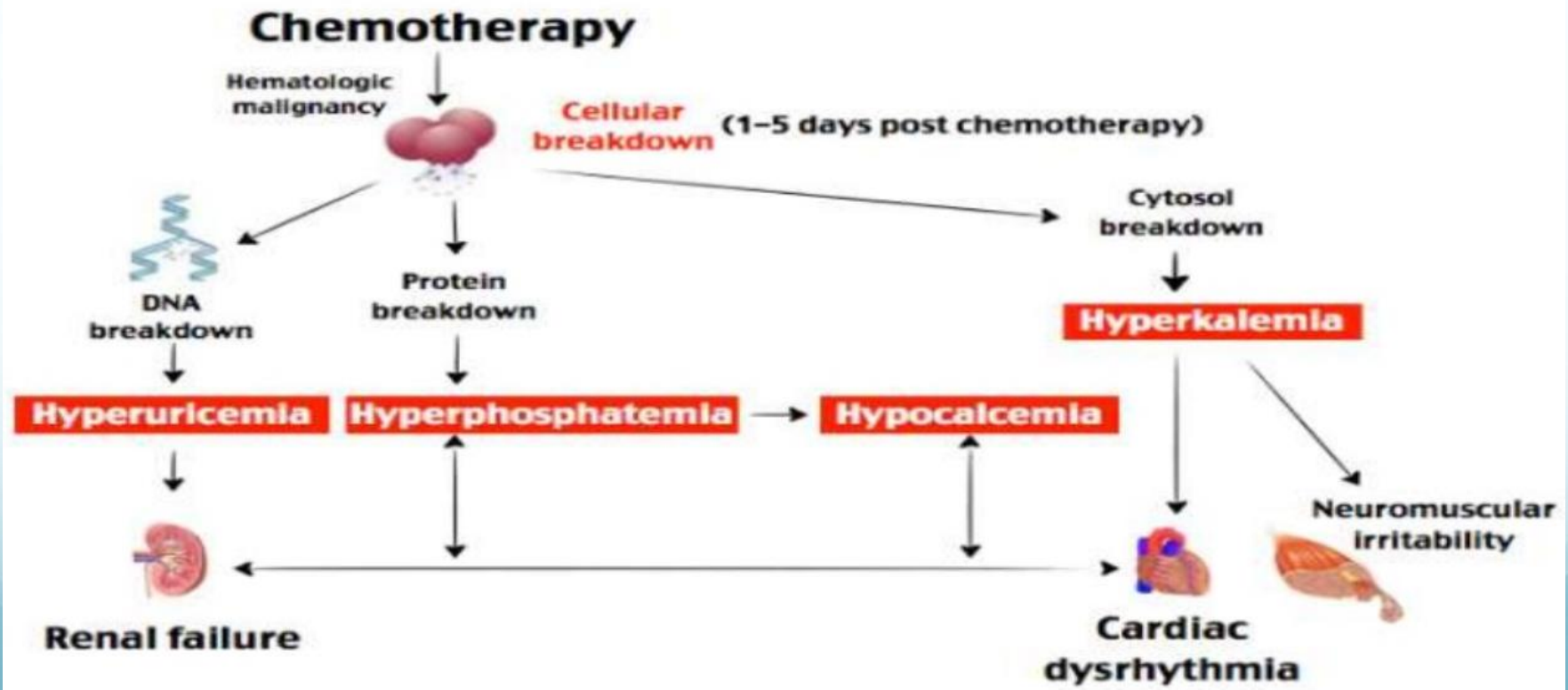


Síndrome de Lise Tumoral

- **Definição:** emergência metabólica decorrente da destruição em massa (espontânea = rara ou decorrente do tratamento) de células tumorais, liberando para o sangue periférico uma **grande quantidade de eletrólitos intracelulares e metabolitos dos ácidos nucleicos**.



Síndrome de Lise Tumoral

DEFINIÇÃO segundo CRITERIOS DE CAIRO-BISHOP:

Duas ou mais das seguintes alterações laboratoriais

Element	Value	Change From Baseline
Uric acid	$\geq 476 \mu\text{mol/L}$ (8 mg/dL)	25% increase
Potassium	$\geq 6.0 \text{ mmol/L}$ (or 6 mEq/L)	25% increase
Phosphorus	$\geq 2.1 \text{ mmol/L}$ (6.5 mg/dL) for children or $\geq 1.45 \text{ mmol/L}$ (4.5 mg/dL) for adults	25% increase
Calcium	$\leq 1.75 \text{ mmol/L}$ (7 mg/dL)	25% decrease

QUE OCORRA no período de três dias antes e sete dias após a terapia citotóxica.

Síndrome de Lise Tumoral

Síndrome LABORATORIAL X Síndrome Clínica

Laboratory TLC

Abnormality in two or more of the following, occurring within 3 days before or 7 days after chemotherapy

Uric acid >8 mg/dL or 25% increase

Potassium >6 meq/L or 25% increase

Phosphate >4.5 mg/dL or 25% increase

Calcium <7 mg/dL or 25% decrease

Clinical TLS

Laboratory TLS plus one or more of the following

Increased serum creatinine (1.5 times upper limit of normal)

Cardiac arrhythmia or sudden death

Seizure

Síndrome de Lise Tumoral

- **APRESENTAÇÃO CLÍNICA:**

Hyperkalemia	Hyperphosphatemia	Hypocalcemia	Hyperuricemia
<ul style="list-style-type: none">• Diarrhea• Nausea• Vomiting• Paresis or paralysis• Paresthesia• Muscle cramps• Cardiac conduction defects• Cardiac dysrhythmias• ECG changes	<ul style="list-style-type: none">• Anuria• Oliguria• Azotemia• Signs and symptoms of hypocalcemia	<ul style="list-style-type: none">• Muscle twitching• Carpopedal spasm• Tetany• Seizures• Laryngospasm• Paresthesia• Chvostek sign• Trousseau sign• Confusion• Delirium• Hypotension• Ventricular dysrhythmias• QT interval prolongation	<ul style="list-style-type: none">• Nausea• Vomiting• Diarrhea• Peripheral edema• Flank pain• Oliguria• Anuria• Azotemia• Crystalluria

ECG = electrocardiogram.

Síndrome de Lise Tumoral

- **EPIDEMIOLOGIA:**
- Incidência variável na literatura: 6 a 43%;
- Mais frequente no período de 12 a 72 horas após a QT;
- Risco de ocorrência **MAIOR** em neoplasias altamente proliferativas como **LEUCEMIAS**, **LINFOMAS** e alguns tumores não hematológicos como **TUMORES GERMINATIVOS**, **TUMORES DE PEQUENAS CELULAS** (small cells cancers) com grandes massas tumorais quimiossensíveis;

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Síndrome de Lise Tumoral

- **FATORES DE RISCO:**

Cancer-Related Risk factors

- Large burden of tumour
- Neoplastic infiltration of the bone marrow, liver, spleen, kidneys
- Tumour with high mitotic rate
- Tumour highly chemosensitive
- Haematologic malignancy

Patient-Related Risk Factors

- Pre-existing nephropathy
- Hyperuricemia
- Hypotension
- Dehydration
- Nephrotoxins (drugs, contrast)
- Exogenous potassium or phosphorus intakes

Síndrome de Lise Tumoral

- **FATORES DE RISCO:**

Patient-Related Factors	Disease-Related Factors	Treatment-Related Factors
<ul style="list-style-type: none"> • Dehydration • Oliguria or anuria • Renal dysfunction • Acidic urine • Leukocytosis • Executive lymph node involvement • Hyperkalemia • Hyperphosphatemia • Large tumor burden • Hyperuricemia • Increased serum lactate dehydrogenase • Nephrotoxic agent exposure 	<ul style="list-style-type: none"> • Large tumor burden • Tumor with rapidly dividing cells • Burkitt lymphoma • Acute lymphoblastic leukemia • Chronic leukemia • Breast cancer • T-cell lymphoma • Lymphosarcoma • Small cell lung cancer • Gastric cancer • Colorectal cancer • Germ cell cancer • Ovarian cancer • Vulvar cancer • Thymoma • Neuroblastoma • Metastatic lymphoma • Metastatic medulloblastoma 	<ul style="list-style-type: none"> • Alemtuzumab • Bortezomib • Cisplatin • Cladribine • Corticosteroids • Cytarabine • Doxorubicin • Etoposide • Fludarabine • Gemtuzumab • Hydroxyurea • Imatinib mesylate • Intrathecal methotrexate • Mitoxantrone • Paclitaxel • Rituximab • Tamoxifen • Thalidomide • Total body irradiation • Venetoclax • Zoledronic acid

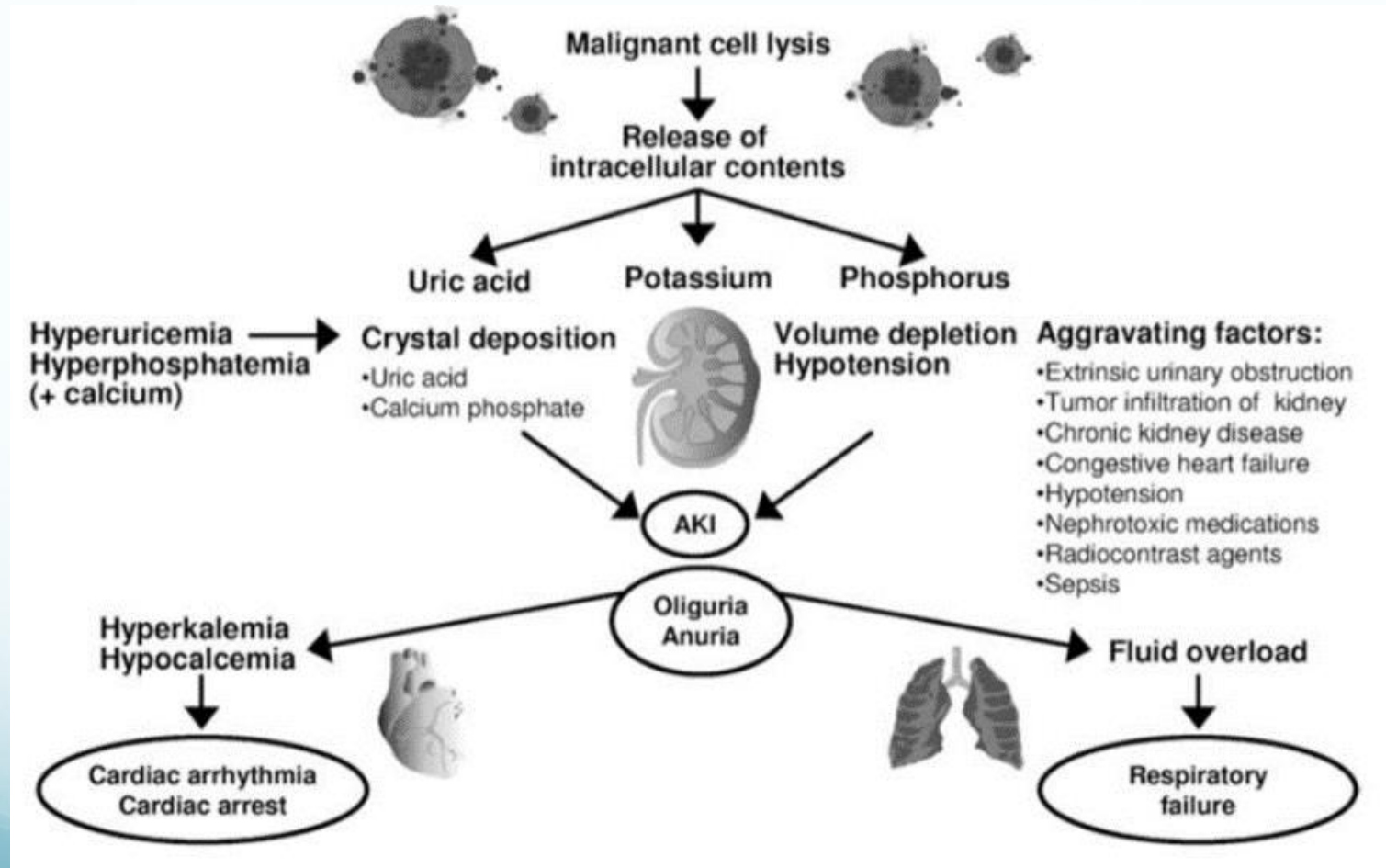
Adeyinka A & Bashir K (2019). Tumor lysis syndrome. StatPearls. Available at: <https://www.ncbi.nlm.nih.gov/books/NBK518985/>

Kaplow R & Iyere K (2016). Recognizing and preventing tumor lysis syndrome. Nursing, 46(11):26-32.

DOI:10.1097/01.NURSE.000050275.87828.2d

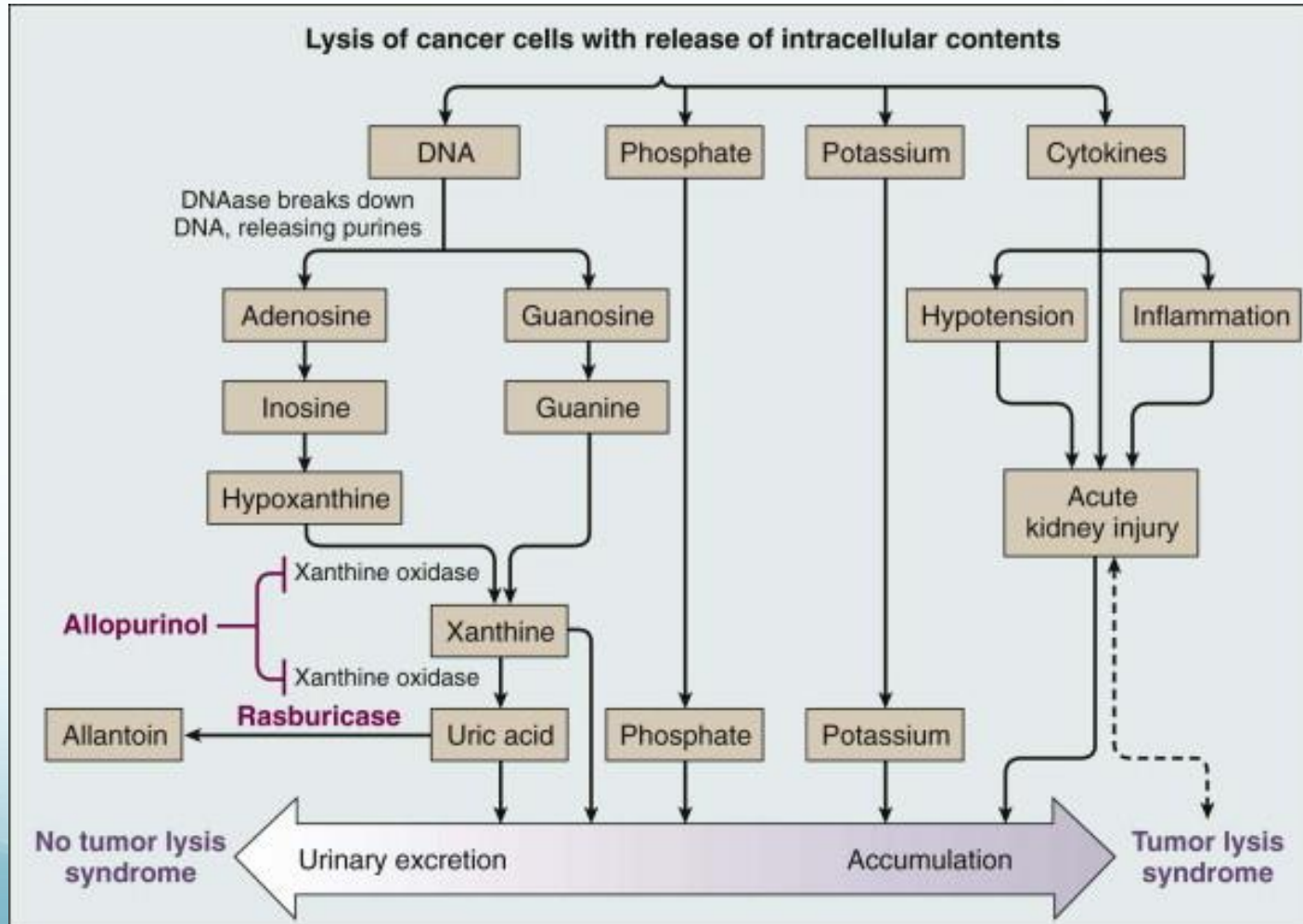
Síndrome de Lise Tumoral

- **SINDROME ESTABELECIDO:**



Síndrome de Lise Tumoral

- **SINDROME ESTABLELECIDA:**



Síndrome de Lise Tumoral

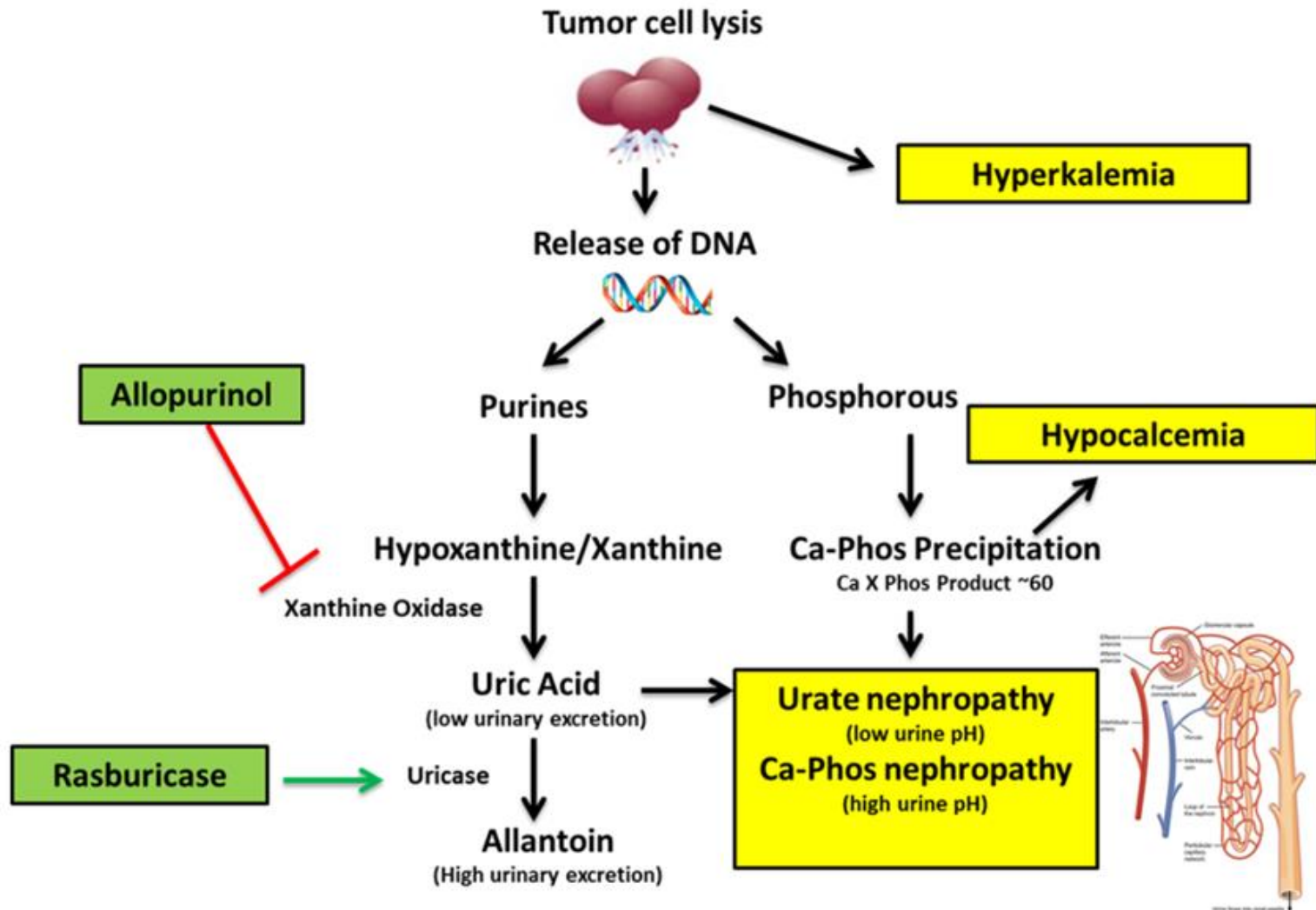
- **TRATAMENTO:** melhor forma de tratamento SÃO AS MEDIDAS DE PREVENÇÃO, identificando os casos de risco e instituindo as medidas de PROFILAXIA.
 - **Hydration** : Patients with intermediate to high risk should receive 2–3 L/m² intravenous (i.v.) crystalloids
 - Urine output should be maintained within the range of 80–100 ml/m²/h
 - **Alkalinisation of urine** **not recommended** in the prevention or treatment of TLS calcium phosphate precipitation the solubility of xanthine and hypoxanthine significantly decreases at these pH values.
- **Xanthine Oxidase Inhibitors** : Allopurinol ,Febostat
 - Treatment is generally initiated 24–48 hours before the start of chemotherapy, if possible.
 - It is continued for up to 3–7 days after the last day of chemotherapy
 - The advised dose of allopurinol in adults is 200–400 mg/m² daily divided in 1–3 oral doses, with a maximum

Síndrome de Lise Tumoral

- **TRATAMENTO:** melhor forma de tratamento SÃO AS MEDIDAS DE PREVENÇÃO, identificando os casos de risco e instituindo as medidas de PROFILAXIA.

	Low-risk disease	Intermediate-risk disease	High-risk disease
Diagnostic measures	<ul style="list-style-type: none"> • No specific measures 	<ul style="list-style-type: none"> • Daily monitoring of laboratory abnormalities before and during the first 7 days of anticancer therapy 	<ul style="list-style-type: none"> • At least twice daily monitoring of laboratory abnormalities before and during the first 7 days of anticancer therapy
Preventive measures	<ul style="list-style-type: none"> • Moderate hydration is recommended 	<ul style="list-style-type: none"> • Vigorous hydration • Keep urinary output > 100 mL/h • Treatment with allopurinol or febuxostat should be started at least 24 hours before initiation of anticancer therapy and should be continued till normalization of uric acid levels and signs of large tumor burden are absent 	<ul style="list-style-type: none"> • Vigorous hydration • Keep urinary output > 100 mL/h • Single dose 6 mg of rasburicase. Repeat doses as necessary. In case of contraindication treatment with febuxostat
Treatment of established tumor lysis syndrome	<ul style="list-style-type: none"> • Admission to intensive care unit with continuous cardiac monitoring and monitoring of laboratory abnormalities every 4–6 hours • Early nephrology consultation to estimate the indications for renal replacement therapy • Correction of electrolyte abnormalities • Vigorous hydration, keep urinary output > 100 mL/h • Single dose 6 mg of rasburicase. Repeat doses as necessary. In case of contraindication, treatment with febuxostat 		

Síndrome de Lise Tumoral



Protocolo Assistencial de Manejo de Síndrome de Lise Tumoral

