Drug of the Day
- Rasburicase-
(Elitek)

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PLAN:

- **Medical Indications**
- **Dosage and administration**
- **Mechanism of Action**
- **Adverse Effects**
- **Contraindications**

Medical Indications:

"Elitek is a recombinant urate-oxidase indicated for initial management of plasma uric acid levels in pediatric and adult patients with leukemia, lymphoma, and solid tumor malignancies who are receiving anti-cancer therapy expected to result in **tumor lysis** and subsequent elevation of plasma uric acid"

TLS:

- Tumor lysis syndrome causes metabolic abnormalities that results from spontaneous or treatment-related tumor necrosis
- Tumor lysis syndrome occurs in malignancies that are highly proliferative and have high tumor burdens, such as lymphomas and leukemias.
- Hyperphosphatemia
- Hyperkalemia
- **Hyperuricemia** (generally a uric acid level ≥8 mg/dL) **is a hallmark finding** of tumor lysis syndrome.
- **Renal dysfunction**

Current treatment:

- Hydration, urine alkalinization, and allopurinol.

BUT:

- “Rasburicase is safe and highly effective for the prophylaxis or treatment of hyperuricemia in patients with leukemia or lymphoma.”
- “This randomized study demonstrated **more rapid control and lower levels of plasma uric acid** in patients at high risk for tumor lysis who received rasburicase compared to allopurinol. For pediatric patients with advanced stage lymphoma or high tumor burden leukemia, **rasburicase is a safe and effective alternative to allopurinol** during initial chemotherapy”

Goldman SC, Holcenberg JS, Finkleslein JZ, Hutchinson R, Kreissman S, Johnson FL, Tou C, Harvey E, Morris E, Cairo MS. A randomized comparison between rasburicase and allopurinol in children wilh lymphoma or leukemia al high risk for lumor lysis. *Blood.* 2001;97:2998–3003

Pui CH, Mahmoud HH, Wiley JM, Woods GM, Leverger G, Camitta B, Hastings C, Blaney SM, Relling MV, Reaman GH. Recombinant urate oxidase for the prophylaxis or treatment of hyperuricemia in patients with leukemia or lymphoma. *J Clin Oncol.* 2001;19:697–704

Mode of Delivery:

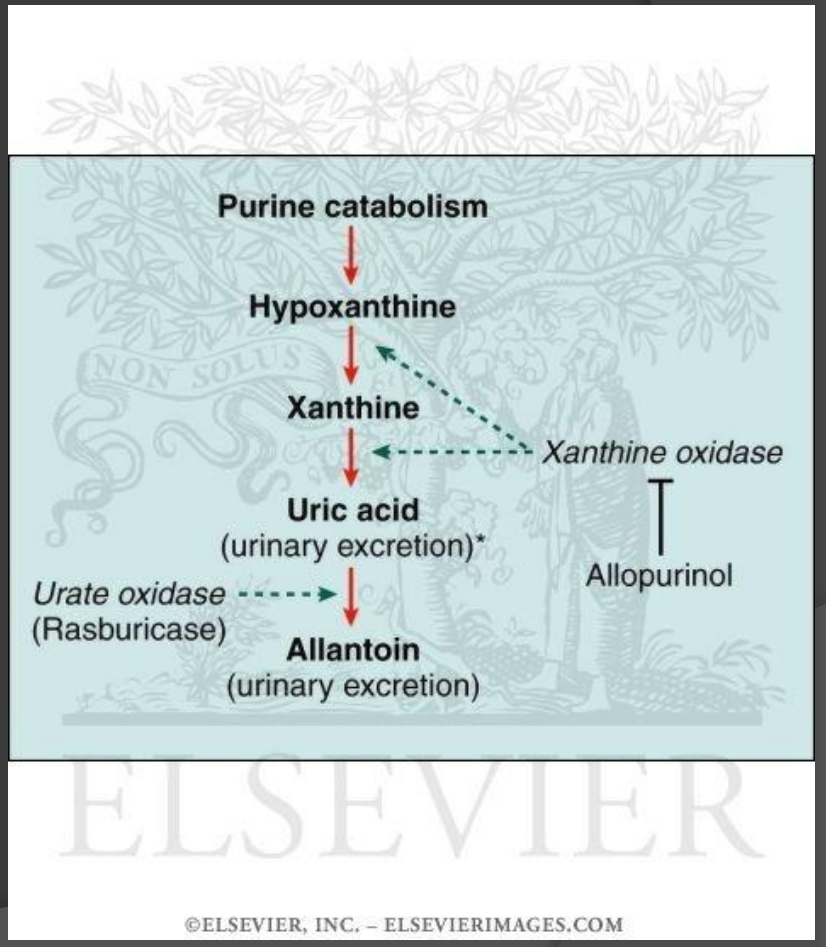
- IV: 0.2 mg/kg as a 30 minute intravenous infusion daily for up to 5 days.

- The first dose of rasburicase should be administered 4 to 24 hours before starting chemotherapy

- NOT BOLUS!

Mechanism of Action:

- **Rasburicase** converts existing uric acid to allantoin, which is 5 to 10 times more soluble in urine than uric acid.
- Rasburicase differs from allopurinol since it can affect existing plasma uric acid
- allopurinol affects only the future production of uric acid by inhibiting xanthine oxidase



Adverse Effects:

- Anaphylaxis (<1%)
- Hemolysis (<1%)
- Methemoglobinemia (<1%)

Table 1

Comparison of adverse effects reported with rasburicase and intravenous allopurinol*

Type of reaction	Incidence with rasburicase (n = 347)	Incidence with allopurinol (reported from clinical trials)
Vomiting	50%	1.2%
Fever	46%	<1%
Nausea	27%	1.3%
Headache	26%	<1%
Abdominal pain	20%	None reported
Constipation	20%	<1%
Diarrhea	20%	<1%
Mucositis	15%	None reported
Rash	13%	1.5% (most common)

*From references 4 and 11.

CI: G6PD, history of anaphylactic or hypersensitivity reactions

$$$???

Table 2

Comparison of cost for rasburicase and allopurinol/sodium bicarbonate

Drug	Average dose per day	Maximum duration	Cost per day*	Cost of 5 days of therapy
Allopurinol sodium (intravenous)	300 mg	NA	$473.89	$2369.45
Oral allopurinol	600 mg	NA	$0.28	$1.40
Sodium bicarbonate intravenous (90 mEq)‡	4000 ml (rate, 150–200 mL/h)	NA	$0.74	$29.60
Rasburicase	13.5 mg‡ (based on 0.2 mg/kg for 70-kg patient)	5 days	$2724.84	$13,624.20

Questions?...