Evaluation of Rasburicase Use Following the Implementation of a Standardized Dosing Protocol

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Background

- Rasburicase: recombinant urate oxidase which breaks down uric acid to allantoin[1]
  - Approved by the FDA in 2002 for elevated uric acid in tumor lysis syndrome[2]
- Standard dosing 0.2 mg/kg/day for up to 5 days[2]
- Recent studies show single fixed doses and weight based dosing have comparable efficacy[4-6]
  - 6 mg doses result in lower sustained levels of uric acid
  - Majority of patients will respond to a single 6 mg dose
- Ascension Health instituted usage and dosing guidelines in 2014

Objective

- The primary objective of this study was to assess the compliance to institutional guidelines for the prescribing and dosing of rasburicase.

Ascension Health Guidelines

Rasburicase Use

1. For hematology/oncology adult and pediatric patients in the inpatient setting
2. For use by hematology/oncology clinician or designee

Patient Criteria

1. Uric acid ≥ 8 mg/dL from lab drawn within 24 hours of first dose

OR

2. High risk patient* with at least one of the following:
   i. Bulky disease (>10 cm)
   ii. ↑ LDH (>2x ULN)
   iii. ↑ SCr (>1.5x ULN)
   iv. Allergy to allopurinol

**High risk = Burkitt's lymphoma, WBC ≥ 100,000 in ALL, WBC ≥ 50,000 in AML*

Dosing

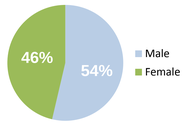
1. Dosed at 0.2 mg/kg *(max 6 mg)*
2. Doses < 6 mg rounded to vial size *UNLESS:*
   i. Rounded dose >10% different
   ii. Calculated dose <1.5 mg
3. Single doses administered *UNLESS:*
   i. Subsequent uric acid >8 mg/dL
   ii. ↑ uric acid trend from baseline
4. Repeat courses not recommended
5. Chemotherapy initiated 4 – 24 hours from rasburicase administration

Methods

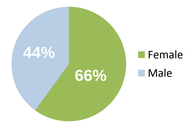
- Retrospective chart review was performed at St. Vincent Indianapolis Hospital, a 500 bed adult and pediatric hospital. The review identified all patients between June 1, 2014 and May 31, 2015 who received at least one dose of rasburicase during their admission.
- Patients were assessed to determine if they met the Ascension Health criteria established for the use and dosing of rasburicase.

Patient Demographics

Adult Demographics
- 41 patients reviewed
  - Average age: 65.8 years [32 years – 38 years]



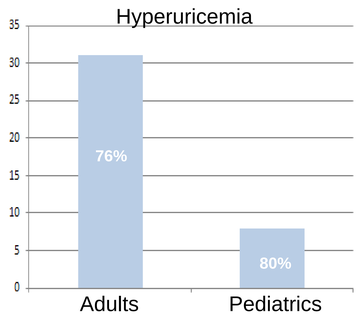
Pediatric Demographics
- 10 patients reviewed
  - Average age: 4.1 years [2 days – 15 years]

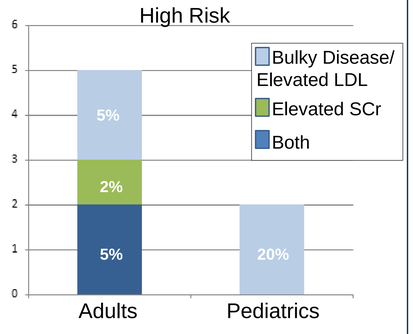


Results

Restrictions for Use
- Ordered appropriately by a hematology/oncology clinician or designee for a hematology/oncology patient:
  - 100% adults
  - 40% pediatrics

Patient Criteria
- Patients who met one of the two criteria for receiving rasburicase:
  - 85.4% adults
  - 100% pediatrics





Results

Dosing Criteria:

Dosing	Adults	Pediatrics**
Dosed at 0.2 mg/kg to a maximum of 6 mg	40	3
Doses less than 6 mg	1	7
Rounded dose appropriately	1	8
Subsequent dose of rasburicase	6	1
Uric acid >8 mg/dL	5	0
Upward trend from baseline	0	1

**Average pediatric dose was 0.14 mg/kg/dose (0.08 – 0.18 mg/kg)

Chemotherapy Criteria
- Patients who received chemotherapy in the recommended 4 – 24 hours:
  - 66% adults (18 of 27 eligible oncology patients)
  - 50% pediatrics (2 of 4 eligible oncology patients)

Conclusions

- Guidelines were generally utilized by providers, with good adherence for adult patients. Additional provider education may be warranted to appropriately identify patient specific criteria for use and clinical situations where initiation of chemotherapy between 4 – 24 hours is warranted.
- Less compliance was seen in pediatrics, with renal and cardiac patients making up a large percentage of rasburicase doses. Further review of limited literature available on rasburicase use in pediatric patients with renal and/or cardiac disease is warranted to determine expansion of guidelines.

References

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Disclosures

The authors of this presentation have nothing to disclose concerning possible financial or personal relationships with commercial entities that may have an interest in the subject matter of this presentation.