Southern Illinois University Edwardsville School of Pharmacy

Evaluation of Single Dose Rasburicase in Patients with Tumor Lysis Syndrome at a Community Teaching Hospital

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BACKGROUND

- Tumor lysis syndrome (TLS) occurs in response to chemotherapy and results in characteristic findings of hyperuricemia, hyperkalemia, hyperphosphatemia, and hypocalcemia
- Recombinant urate oxidase such as rasburicase, is administered to patients who are at high risk of developing TLS or actively experiencing TLS to acutely lower uric acid levels
- Currently, there is not one standardized dosing of rasburicase among health-systems, and many are utilizing off-label dosing instead

OBJECTIVE

- To evaluate the efficacy of a 6 mg single-dose rasburicase (SDR) in patients for oncology-related uses at a community teaching hospital

METHODS

- The institution's investigational review board approved this retrospective, cross-sectional chart review
- Data was obtained using the institution's electronic medical record system EPIC, and stored in a secure excel spreadsheet that may only be accessed by study team members
- Inclusion criteria consisted of adults 18 years and older who received at least one dose of rasburicase for an oncology-related use over a 5-year time period (9/1/2016 – 9/1/2021)
- Exclusion criteria consisted of any patients who used rasburicase for any other purpose than prevention and/or treatment of TLS
- The primary outcome for this study was to measure the effectiveness of the current 6 mg SDR
- Patients who were not administered subsequent dosing of rasburicase were considered to have an effective primary outcome for the 6 mg SDR
- The secondary outcome was to identify any common characteristics of patients who had received more than one dose of rasburicase
- Renal function was also assessed via the collection of creatinine clearance and serum creatinine data points

RESULTS

Figure 1: Percent of study population that met inclusion criteria

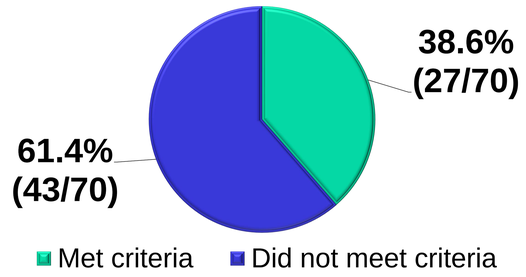

Figure 2. Excluded study population breakdown

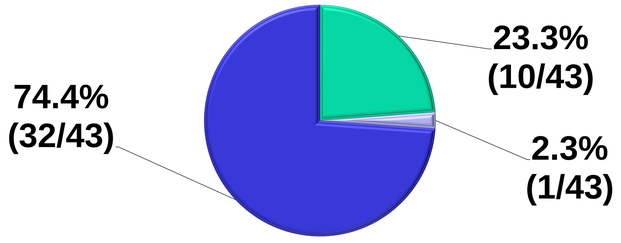

Table 1. Patient demographics

Variables	Total (N = 27)	SDR (N = 25)	MDR (N = 2)
Race/Ethnicity			
White	20	19	1
Black	3	3	0
Hispanic	1	1	0
Other	3	2	1
Mean age (years)	63.4	63.0	69.0
Mean height (in)	66.5	66.6	65.5
Mean weight (kg)	82.7	81.9	92.0
Type of Malignancy			
Hematologic*	18	16	2
Colon/Rectal	3	3	0
Lung/Bronchus	4	4	0
Breast	1	1	0
Esophageal	1	1	0
Stage of Malignancy			
Stage 3	1	1	0
Stage 4	12	12	0
Not provided	14	12	2

*Hematologic includes but is not limited to AML, APL, CLL, CML, Diffuse Large B-cell, Lymphomas, Hodgkin's, Mantle Cell

RESULTS

Figure 3. Mean change in uric acid level from baseline to post-rasburicase (mg/dL)

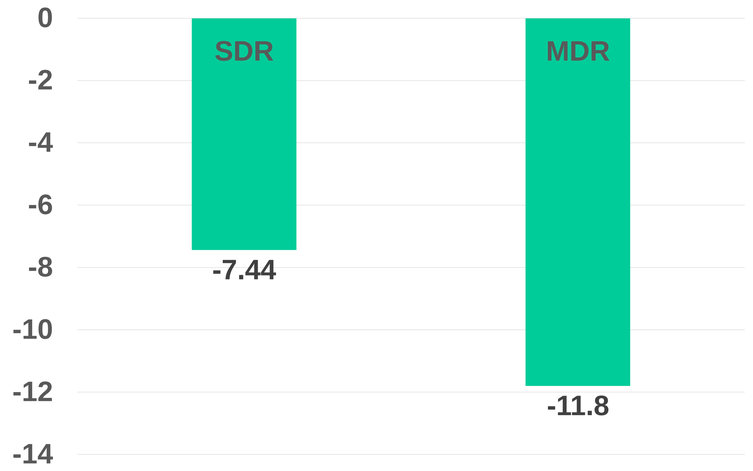

Table 2. Changes in renal function

	Total (N = 27)	SDR (N = 25)	MDR (N = 2)
Mean (+) in CrCl (mL/min)	5.0	4.8	8.2
Standard dev of the mean (+) in CrCl (mL/min)	1.7	1.9	5.9
Mean (-) in SCr (mg/dL)	0.5	0.4	2.5
Standard dev of the mean (-) in SCr (mg/dL)	0.8	0.4	3.1

CONCLUSIONS

- The current regimen at this institution of 6 mg SDR, is effective at preventing and treating hyperuricemia in patients at risk of TLS or with active TLS
- Over half of the studied population was administered rasburicase prophylactically and thus did not have complete baseline and post-rasburicase uric acid levels
- Rasburicase administration in patients is beneficial for improving renal function