The Efficacy of Fixed Dose of Rasburicase Compared to Weight-Based Dose in Treatment and Prevention of Tumor Lysis Syndrome
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Introduction
Rasburicase is widely used to treat and prevent TLS in cancer patients. The Food and Drug Administration (FDA) approved dose is Intravenous 0.2 mg/kg/day for 5 days. However, many institutions adapted the use of fixed dosing for convenience and cost effectiveness. In our institution, we have found that the two dosing approaches are utilized, which is mainly physician preference. In this retrospective analysis we sought to evaluate and compare the efficacy between two dosing approaches of the single fixed dose of Rasburicase (6 mg) compared to the weight-based dose (0.2 mg/kg/day) in decreasing the uric acid levels to <4 mg/dL by day 3.

Methods & Data
This is a single institution retrospective study enrolled all patient who were hospitalized to our institution for 111 months, between October 2008 and December 2017 and received Rasburicase either 6 mg fixed dose or weight-based dose. Data was collected for age, race, gender, diagnosis, uric acid levels before and after treatment, dose of Rasburicase and number of doses received. Descriptive statistics like mean and percentages were used to report results. Normality of distribution was checked with Shapiro-Wilk test and confirmed by visualizing it using histograms. Comparisons between treatment and control group were made using Kruskal-Wallis, Chi-square and Wilcoxon signed-rank test as appropriate.

Results
We enrolled 115 patients, 79 patients (69%) received fixed dose and 36 patients (31%) received weight-based dose. 83% of patients were males. Mean age was 58 ±15.5 yrs. Patients in the fixed dose group received a mean of 1.4±0.63 doses whereas patients in weight base dose group received a mean of 2.38±1.47 doses. Within weight-based dosing regimen, 19% patients had effective uric acid control and 11% had ineffective control. In the fixed dosing group 33% patients had effective uric acid control and 37% patients had ineffective control. There was no difference between fixed vs weight-based dosing regimen in bringing the uric acid level <4mg/dL (chi-square=1.67, p-value=0.19). Although there was a significant difference in before and after uric acid levels with the use of Rasburicase (p<0.001).

Conclusion
In this single center retrospective study, there was no statistical difference in the efficacy between the fixed dose compared to weight-based dosing regimen. We recommend prospective studies to confirm the effectiveness of the cost-effective single dose.

References
1-Effectiveness of a Single 6-mg Fixed Dose of Rasburicase for Prevention or Management of Hyperuricemia Associated with Tumor Lysis Syndrome in Adults with Cancer JHOP - March 2019 Vol 9, No 1 - Original Research
3-Comparative Evaluation of Single Fixed Dosing and Weight-Based Dosing of Rasburicase for Tumor Lysis Syndrome. ACCP March 2013