



Prevalence and Management of Constipation in Pediatric Patients Undergoing Chemotherapy: A Retrospective Review



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Background

- Children with acute lymphoblastic leukemia (ALL) suffer a litany of therapy induced side effects
- Methotrexate is a common chemotherapy agent administered for the treatment of ALL
- Failure to clear methotrexate from the body can result in toxicities including mouth sores, mucositis, and organ dysfunction, which have been well documented in the literature
- To date, no studies have examined the correlative relationship between delayed methotrexate clearance and constipation
- This study aims to examine chemotherapy induced constipation, current management practices, and the relationship between delayed clearance of methotrexate and constipation

Methods

- Single institution, retrospective cohort study, analyzed data from Riley Hospital for Children
- Patients birth to 21 years of age with ALL, hospitalized for high dose intravenous methotrexate therapy from January 2010 to September 2021
- Constipation definition: no stool for greater than 48 hours documented in the inpatient EMR Cerner system

Demographics and Clinical Characteristics

Characteristic	Entire Cohort N (%)
Unique Patients	23
Median age (years) at Induction (range)	6.7 (0 - 26)
Sex	
Female	5 (26)
Male	17 (74)
Race	
White	20 (87)
Black	1 (4.3)
Asian	2 (8.6)
American Indian	0 (0)
Pacific Islander	0 (0)
Other/Unknown	0 (0)
Ethnicity	
Hispanic or Latino	2 (8.7)
Non-Hispanic or Latino	21 (91.3)

Table 1: Demographics and clinical characteristics of pediatric patients with ALL (Pediatric Hospital Information System, 2010-2021)

Admission Information

Characteristic	N (%)
Unique Admissions	61
Average Length of Stay	5 days
Range of Length of Stay	3-29 days
Historical Constipation During Previous Admissions	31 (50.8)
Did Not Have Last Stool Documented Prior to Admission	53 (91.4)
Concomitant Chemotherapy Medications Given	57 (96.6)
Vincristine Given with High Dose Methotrexate	56 (91.8)
Mercaptopurine Given with High Dose Methotrexate	57 (93.4)
Concomitant Opioids Prescribed During Admission	13 (22.7)
Constipation During Admission	17 (27.9)

Table 2: Exploring admission data of patients receiving high dose methotrexate

Management of Constipation

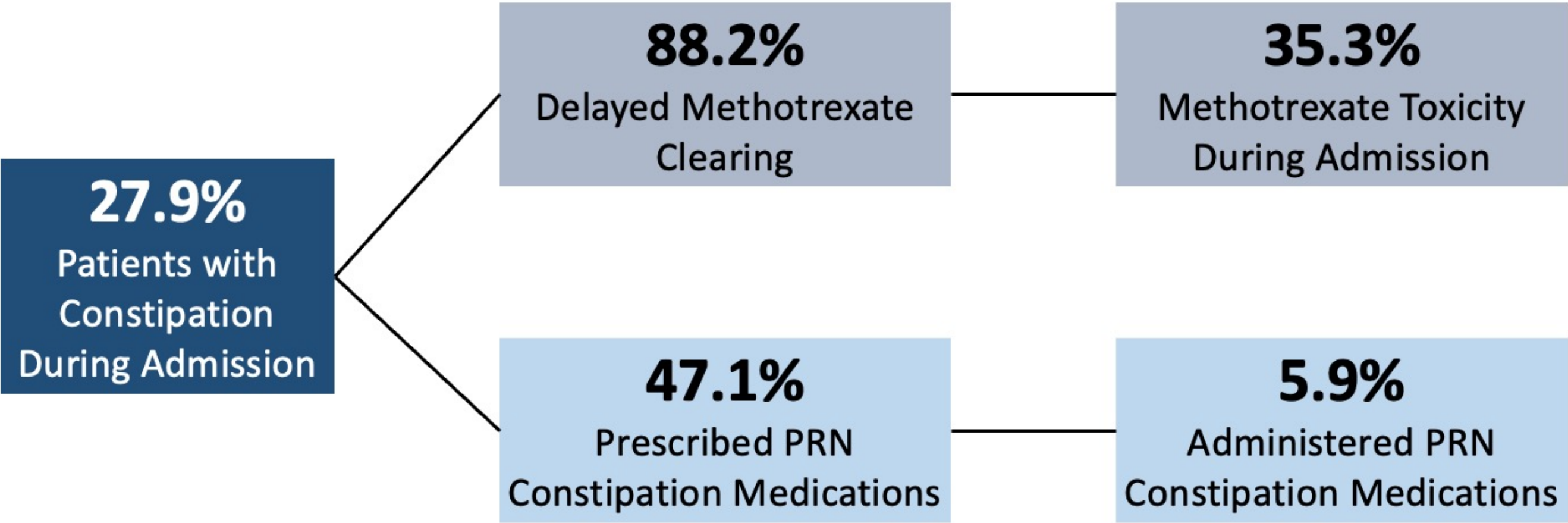


Table 3: Evaluating methotrexate clearance and management of constipation in patients during admission

Discussion and Next Steps

- We identified that 27.9% of patients with ALL who received methotrexate therapy during hospitalization suffered from constipation, with 88.2% of these patients experiencing delayed methotrexate clearance
- Half of admitted, constipated patients were prescribed constipation medications PRN that were then given 5.9% of the time
- In addition to their prolonged hospitalizations, majority of patients received vincristine, contributing to constipation
- Future prospective studies should focus on standardizing bowel regimens and increased attention must be paid to patients receiving constipating chemotherapy agents

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