



Safety of Ambulatory High-dose Methotrexate (HDMTX) Administration Among Hematological Malignancies Patients in Tertiary Care Center

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Abstract

we are assessing the safety of ambulatory HDMTX among adult patients. Regular laboratory monitoring, adequate oral hydration and oral medications were utilized to enhance methotrexate clearance without the necessity to use devices at home for infusion or admitting the patient

Background

The utilization of HDMTX is commonly used in solid malignancies such as osteosarcoma and hematological malignancies such as acute lymphoblastic leukemia and non-Hodgkin's Lymphoma. Urine Alkalinization using intravenous sodium bicarbonate and calcium folinate to facilitate clearance of MTX are crucial two steps in MTX clearance and to avoid or minimize side effects such as nephrotoxicity and hepatotoxicity.

Objective

-To assess the safety of ambulatory HDMTX administration among adult patients with hematological malignancies in tertiary care center.

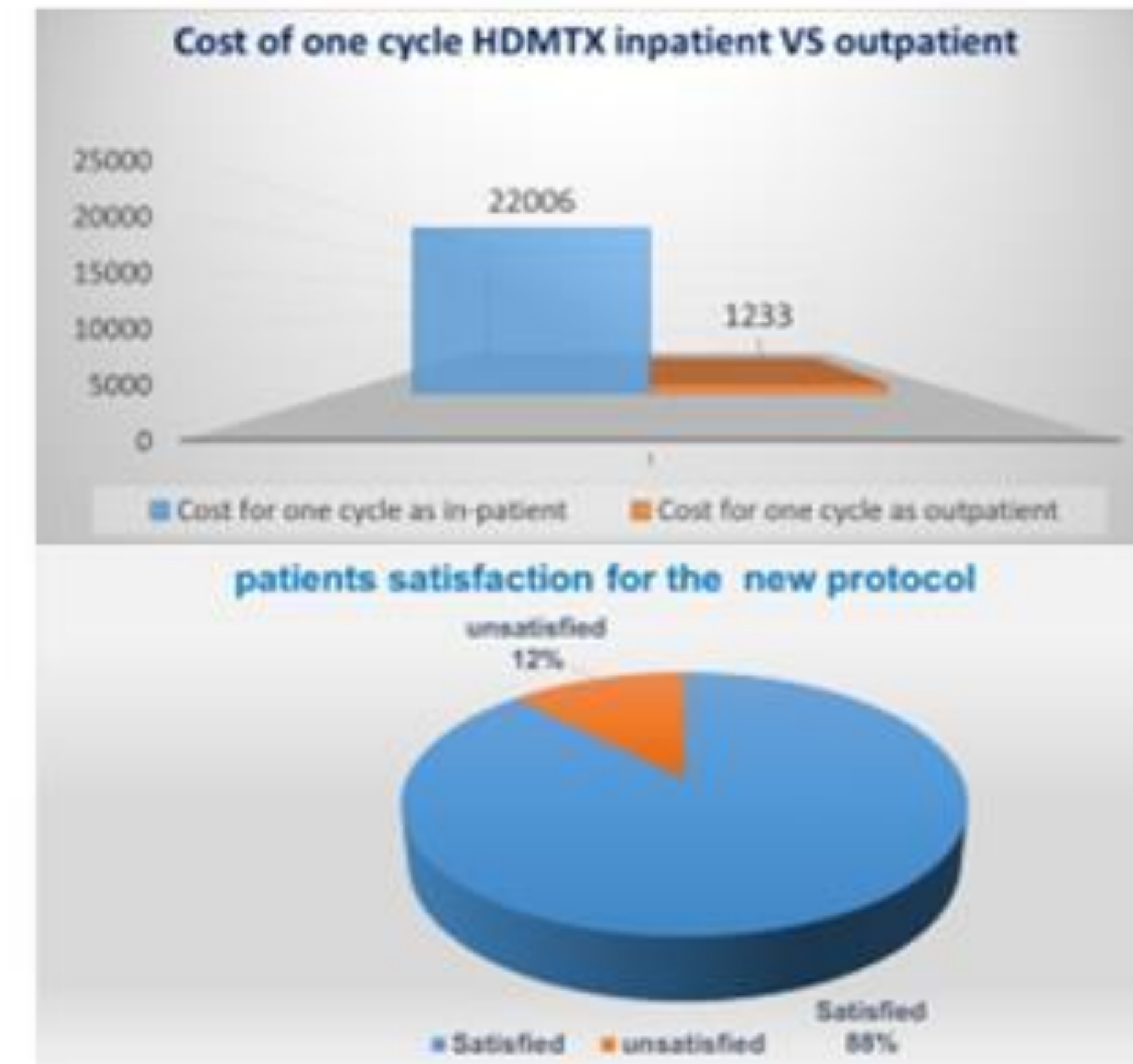
Figure 1

Pre-Chemo	Start the following medications 24 hours prior to methotrexate administration and continue until methotrexate level is less than 0.1 micromol/L				
	Sodium bicarbonate 1950 mg PO q4 h				
	Acetazolamide 250 mg PO q6h.				
	Oral water intake 3 L/day				
Chemotherapy	If urine pH is ≤ 7, start sodium bicarbonate 100 mEq + 20 mEq KCl in 1 Liter D5W IV @ 150 mL/hr. Start 4 hours prior to methotrexate infusion and continue until the end of the methotrexate infusion. Keep urine out put (UOP) >100 mL/hr				
	Methotrexate 3000 mg/m ² = mg IV in 1 L normal saline over 3 hours on day 1 (% dose reduction)				
	Avoid/Discontinue: Bactrim, Fluoroquinolones, NSAIDs, Penicillins, and PPIs) at least 48 hours prior HDMTX and Resume when the level of methotrexate is less than 0.1 micromol/L				
Anti-emetics	Granisetron 1 mg IV 30 minutes prior to chemotherapy If granisetron not available, give ondansetron 8 mg PO BID (give 1 st dose prior to methotrexate)				
	Dexamethasone 8 mg IV/PO 30 minutes prior to chemotherapy on day 1				
	Ondansetron 8 mg PO BID on days 2-3				
	Metoclopramide 10 mg PO/IV q6h PRN nausea/vomiting				
Post-HDMTX	Leucovorin 30 mg PO q6h. Start exactly 24hr after the start of methotrexate infusion and continue until methotrexate level is less than 0.1 micromol/L.				
Time from the start of methotrexate	Methotrexate Level (micromol/L)				
	< 0.1	0.1 – 2	2-20	20-100	>100
At 24 hours	None	continue as ordered	30 mg PO q4h	10mg/m ² IV q6h	100 mg/m ² IV q6h
At 48 hours	None	30 mg PO q4h	15mg/m ² IV q6h	10mg/m ² IV q3h	100 mg/m ² IV q3h
At 72 hours	None	15mg/m ² IV q6h	10mg/m ² IV q3h	100mg/m ² IV q3h	1000mg/m ² IV q3h

Materials & Methods

This trial is open-labeled, single arm study that aims to evaluate the safety of high dose methotrexate administration in an outpatient setting among adult patients with hematological malignancies in a tertiary care center. The study aims to cover a cohort of patients with hematological malignancies from 14 to 60-years-old treated at KFMC scheduled to receive HDMTX from (February-2020) to (February-2022)*. treatment protocol is showing in figure 1,

Figure 2



Summary

Our preliminary results suggest that ambulatory HDMTX is safe, cost effective, more comfortable for patients.

These results encourage the use of this approach more frequently as it decreases hospitalization and thus reduces cost, increases patient satisfaction and helps to solve the issue of bed crisis.

Discussion

Thirty-Four (n=34) cycles, for Sixteen (n=16) patients, were done until now. Around 67.65% of the cycles were for patients diagnosed with DLBCL.

Sixteen cycles (47.1%) of the total cycles achieved MTX level less than 0.1 micromol/L by 48 hours and 30 cycles (91.2%) achieved the same level by 72 hours.

By 72 hours, 23.5% had reversible asymptomatic elevation of creatinine, and all of them were grade one.

By 72 hours, around 35.3% had reversible asymptomatic hepatotoxicity, and all of them were grade 1.

- See figure 2 for cost and patient satisfaction results.

References

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