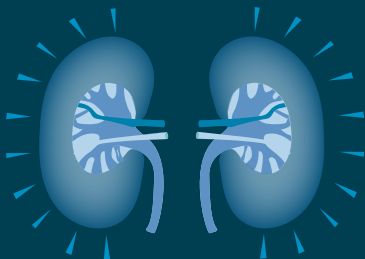


# AN ONCOLOGIC EMERGENCY

UP TO 12% OF PATIENTS WHO RECEIVE HDMTX WILL EXPERIENCE DELAYED CLEARANCE DUE TO ACUTE KIDNEY INJURY (AKI)<sup>1,2</sup>



**!** Prompt recognition, rapid reduction of MTX levels, and effective treatment of AKI and associated toxicities may:

- mitigate further life-threatening toxicity<sup>1</sup>
- facilitate renal recovery<sup>1</sup>
- allow patients to resume HDMTX therapy or receive other chemotherapy<sup>1,3</sup>
- decrease chance of mortality<sup>4</sup>
- decrease hospital length of stay<sup>4</sup>



In a retrospective study of 43 patients, 4 (9%) did not exhibit ANY risk factors and still experienced delayed MTX clearance.<sup>5</sup>

The patient you treat today may not clear MTX like the patient you treated yesterday.



## RISK FACTORS FOR DELAYED METHOTREXATE (MTX) CLEARANCE<sup>1-3</sup>

Patients who have one or more of the following risk factors may experience delayed MTX clearance:<sup>1,5-8</sup>



### Risk Factor

Nephrotoxic comedication  
(see opposite table)

Body mass index  $\geq 25$  kg/m<sup>2</sup>

Body surface area  $\geq 2$  m<sup>2</sup>

CrCl  $< 60$  mL/min

Renal insufficiency prior to HDMTX

Urine pH  $< 7$

Volume depletion due to vomiting, diarrhea, or other factors

Adult and Elderly Patients

Third Spacing (i.e. pleural effusions, ascites, intracranial fluid)

Hypoalbuminemia

Prior toxicity with HDMTX

Down Syndrome

**DRUGS THAT IMPAIR MTX CLEARANCE.<sup>1,5-7</sup>**

Concomitant use of drugs that interfere with MTX excretion can increase MTX toxicity and should be avoided.



Drug Class	Specific Agent*
NSAIDs <sup>a</sup>	Ibuprofen, Naproxen, Salicylates
Antibiotics	Penicillin and penicillin derivatives, probenecid, trimethoprim-sulfamethoxazole, vancomycin, aminoglycosides
Proton Pump Inhibitors	Lansoprazole, Omeprazole, Rabeprazole, Pantoprazole, Esomeprazole
Antifungals	Amphotericin B
Other Chemotherapy	Carboplatin, Cisplatin, Oxaliplatin, Tyrosine kinase inhibitors (TKI)
Immunosuppressants	Cyclosporine
Agents	Radiographic contrast
Vitamins	Vitamin C

<sup>a</sup>NSAIDs, nonsteroidal anti-inflammatory drugs

\*This is not a comprehensive list of all specific agents that could inhibit renal function.

*Of note, the ARK™ Methotrexate Assay crossreacts slightly with triamterene and trimethoprim, which can lead to falsely elevated serum MTX levels.<sup>10</sup>*



Identify early warning signs of HDMTX-induced AKI, even before an increase in serum creatinine, which is a lagging indicator.<sup>1,9</sup>

- ➔ Decreased Urine Output
- ➔ Positive Fluid Balance
- ➔ Weight Change
- ➔ Plasma MTX concentrations above the expected MTX level



Prolonged exposure to MTX can lead to an oncologic emergency and potentially irreversible life-threatening systemic toxicity and organ damage.<sup>9</sup>



**Visit [MTXPK.org](https://MTXPK.org) to see if your patient is clearing MTX as expected.**

References: 1. Howard S, et al. *Oncologist* 2016;21:1–12. 2. Widemann BC, et al. *J Clin Oncol.* 2010;28(25):3979-3986. 3. Christensen AM, et al. *Cancer.* 2012;118(17):4321-4330. 4. Demiralp B, Koenig L, Kala J, et al. *Clinicoecon Outcomes Res.* 2019;11:129-144. 5. Schwartz S, et al. *Oncologist* 2007;12:1299–1308. 6. McBride A, et al. *Journal of Pharmacy Practice* 2012;25(4):477-485. 7. Ibarra M et al. *Br J Clin Pharmacol.* 2022;1-12. 8. Taylor ZL, Miller TP, Poweleit EA, et al. Clinical covariates that improve the description of high dose methotrexate pharmacokinetics in a diverse population to inform MTXPK.org. *Clin Transl Sci.* 2023;00:1-14. 9. Ramsey LB, Balis FM, O'Brien MM, et al. *Oncologist* 2018;23(1):52-61. 10. ARK methotrexate assay [package insert]. Fremont, CA: ARK Diagnostics, Inc.; 2017.

© 2024 BTG International Inc. All rights reserved.

SERB and the SERB logo are registered trademarks of SERB S.à.r.l.

BTG is a registered trademark of BTG International Ltd.

US-VRX-2400069 / July 2024