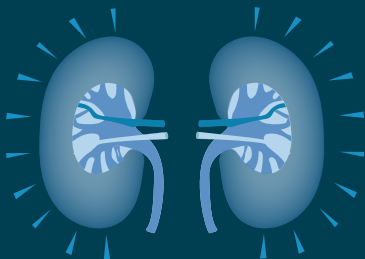


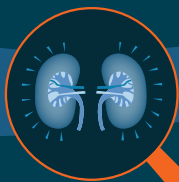
AN ONCOLOGIC EMERGENCY

UP TO 12% OF PATIENTS WHO RECEIVE HDMTX WILL EXPERIENCE DELAYED CLEARANCE DUE TO ACUTE KIDNEY INJURY (AKI)^{1,2}



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

- ➔ mitigate further life-threatening toxicity¹
- ➔ facilitate renal recovery¹
- ➔ allow patients to resume HDMTX therapy or receive other chemotherapy^{1,3}
- ➔ decrease chance of mortality⁴
- ➔ decrease hospital length of stay⁴



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

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



RISK FACTORS FOR DELAYED METHOTREXATE (MTX) CLEARANCE

Patients who have one or more of the following risk factors may experience delayed MTX clearance:^{1,5}



Risk Factor

Nephrotoxic comedication
(see opposite table)

Body mass index ≥ 25 kg/m²

Urine pH < 7

CrCl < 60 mL/min

Renal insufficiency prior to HDMTX

Prior toxicity with HDMTX

Volume depletion due to vomiting, diarrhea, or other factors

Adult and Elderly Patients

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

Polyuria

DRUGS THAT IMPAIR MTX CLEARANCE.^{1,6}

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



Drug Class	Specific Agent*
NSAIDs ^a	Ibuprofen, Naproxen, Salicylates
Antibiotics	Penicillin and Penicillin derivatives, Probenecid, Trimethoprim-Sulfamethoxazole, Vancomycin, Aminoglycosides
Proton Pump Inhibitors	Lansoprazole, Omeprazole, Rabeprazole, Pantoprazole, Esomeprazole
Antifungals	Amphotericin B
Prior Platinum-based Chemotherapy	Carboplatin, Cisplatin, Oxaliplatin
Immunosuppressants	Cyclosporine
Agents	Radiographic contrast
Vitamins	Vitamin C

^aNSAIDs, nonsteroidal anti-inflammatory drugs

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



Identify early warning signs of HDMTX-induced AKI, even before an increase in serum creatinine, which is a lagging indicator:^{1,7}

- 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.⁷



Visit 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. Ramsey LB, Balis FM, O'Brien MM, et al. *Oncologist* 2018;23(1):52-61.



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