Order ID 203283	***Specimen***	***Patient***	**Sandra, Clark**
Provider Exagen, Inc.	*Collected* 01/06/2018		**170104.1**
	Received 01/07/2018	*Gender - DOB*	Male - 01/04/1984
	Test Order	*Identifier Received*	
	Created 01/12/2018		
	Reported 01/12/2018	*Exagen ID*	302243

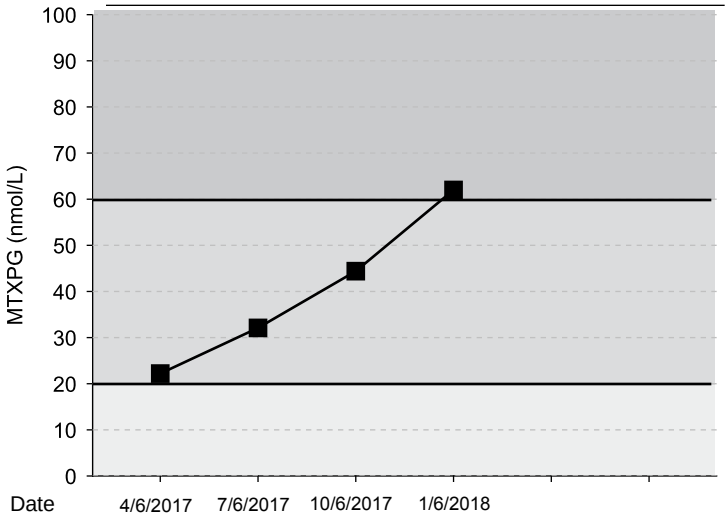
AVISE MTX Test Report

Current Methotrexate Polyglutamate (MTXPG) Level:

62.0 nmol/L RBC equivalent - Therapeutic

Date Current Dose Initiated	Current Dose	Date MTX Initiated
1/6/2018	10	8/8/2014

Current and Prior 5 MTXPG Levels



Date	4/6/2017	7/6/2017	10/6/2017	1/6/2018
Level	22.2 †	32.1 ‡	44.4 †	62.0 ‡
Dose	10	10	10	10

MTXPG Level	*Interpretation & Consideration*
Therapeutic (>60 nmol/L)	Patient is metabolizing MTX effectively. Level is consistent with clinical efficacy
Intermediate (20-60 nmol/L)	Patient may need more exposure to MTX
Sub-therapeutic (<20 nmol/L)	Patient may not be metabolizing MTX effectively or patient may be non-compliant with therapy

†nmol/L RBC
‡nmol/L RBC equivalent

Test Method Description

AVISE MTX measures red blood cell methotrexate polyglutamates, the active metabolites of methotrexate as an aid in optimizing methotrexate dose and therapeutic efficacy in the treatment of rheumatoid arthritis. In a cohort of 256 rheumatoid arthritis patients taking methotrexate (range 5-25 mg/wk, median 15 mg/wk) for more than 3 months, those with a MTXPG level below 20 nmol/L were 3-fold more likely to have a poor response to methotrexate vs. those with level >=20 nmol/L (OR =2.9; 95% CI:1.4-5.9). Those with a MTXPG level above 60 nmol/L were 5-fold more likely to have a good response to methotrexate vs. those with level <=60 nmol/L (OR=5.5; 95% CI:2.5-12.0).

The MTXPG level is obtained by a liquid chromatographic method coupled with tandem mass spectrometry. The concentration from venous blood is expressed as nmol/L packed red blood cells (RBC). The concentration determined from whole capillary blood is expressed as nmol/L RBC equivalent. Studies supporting the clinical utility of this test are based on patients receiving methotrexate for at least 3 months. Caution should be used in interpreting results for patients on therapy for less than three months.

References

1. Dervieux T, Furst D, et al. Polyglutamation of Methotrexate With Common Polymorphisms in Reduced Folate Carrier, Aminoimidazole Carboxamide Ribonucleotide Transformylase, and Thymidylate Synthase Are Associated With Methotrexate Effects in Rheumatoid Arthritis, Arthritis Rheum. 2004; 50(9):2766-2774.
2. Dervieux T, Furst D, et al. Pharmacogenetic and metabolite measurements are associated with clinical status in patients with rheumatoid arthritis treated with methotrexate: results of a multicentered cross sectional observational study, Ann Rheum Dis 2005;64(8):1180-1185.
3. Dervieux T, Greenstein N, et al. Pharmacogenomic and Metabolic Biomarkers in the Folate Pathway and Their Association With Methotrexate Effects During Dosage Escalation in Rheumatoid Arthritis, Arthritis Rheum. 2006;54(10):3095-3103.
4. Kremer J, Toward a Better Understanding of Methotrexate, Arthritis Rheum. 2004;50(5):1370-1382.

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