Name: [redacted]
Sample ID:
Physician:

Sample Type: Saliva
Received: 18-May-23
Reported: 1-Jun-23

175 West Beaver Creek, Unit 24
Richmond Hill, ON L4B 1L1

Rx Report™ - Psychiatry - Anxiety & Depression

Pharmacogenomic Test

(Highly Confidential)

Result Summary

Dear Dr. Alan Gunning,

Greg Jenkins is experiencing symptoms of depression and anxiety. He requested a pharmacogenomic test and a medication review by a clinical pharmacist.

The pharmacogenetic test results and our algorithms indicate:
- The initiation of Vortioxetine (Trintellix) 5 mg once daily, titrated to effect.

According to a high level of evidence, this patient is a CYP2C19 *1/*2 intermediate metabolizer of Citalopram, Escitalopram, and Sertraline. This means he clears these medications from his body at a slightly slower than normal rate, leading to possible mild accumulation and sensitivity to side-effects. The Clinical Pharmacogenetic Implementation Consortium (CPIC) recommends initiating these medications at their regular starting dose, with a close monitor for side-effects. A slower titration schedule and lower maintenance dose may also be considered.

According to a high level of evidence, this patient is a CYP2D6 *1/*41 normal metabolizer of Fluoxetine, Fluvoxamine, Paroxetine, Venlafaxine, Duloxetine, and Vortioxetine. This means he has no problems clearing these medications from his body and he is likely to reach normal bloodstream concentrations.

This patient's gene SLC6A4 S/S denotes low expression and poor binding capacity for the serotonin transporter (SERT) which is responsible for transporting serotonin back to its site of storage. SSRIs aim to block this transporter to leave more serotonin available to interact with serotonin receptors in the cleft and modulate mood, rather than being transported back to its site of storage. Low genetic expression of the SERT means that theoretically, SSRIs will occupy and block a higher percentage of transporters at lower doses to the extent that drug binding to the transporter is achieved. This can predispose this patient to serotonin related side-effects and lead to poor medication tolerability to SSRIs in early stages.

This patient's gene HTR1A rs6295 GG denotes moderated or slowed response to most of the tested SSRIs/SNRIs. This variant indicates high expression of the serotonin-1A autoreceptor, which is a pre-synaptic serotonin receptor responsible for regulating serotonin release. SSRIs/SNRIs aim to block the serotonin transporter which prevents serotonin from being transported back to its site of storage. Not only does blocking this transporter leave more extracellular serotonin available for interaction with different receptors, but it also desensitizes the 5-HT1A autoreceptor. However, due to his highly expressed 5-HT1A gene he may take closer to 8 weeks to fully respond or require slightly higher range maintenance doses of an SSRI to desensitize the 5-HT1A autoreceptor. Alternatively, Vortioxetine can be used as it acts directly on the 5-HT1A autoreceptor, which can lead to desensitization of this receptor and permit the full rise in serotonin levels. Relative to other serotonergic antidepressants, Vortioxetine has significantly lower occupancy rates of the serotonin transporter. Instead, Vortioxetine has a multimodal mechanism and exerts mild energizing and pro-cognitive properties by raising levels of other neurotransmitters such as dopamine, norepinephrine, and acetylcholine.

personalized prescribing
next gen pharmacogenetics

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Summary of Psychiatry - Anxiety & Depression medication

The tested genes have resulted in the following results.

See the last page for an interpretation of the table below.

Drug	Metabolism	Efficacy	Side Effects
5-methylfolate and Vitamin B Complex		Moderate Responder	
Amitriptyline, Clomipramine, Imipramine, Trimipramine, and Doxepin	Normal Metabolizer		
Bupropion	Poor Metabolizer	Moderate Responder	**Anxiety**
Citalopram	Intermediate Metabolizer	Poor Responder	**Heart Palpitations**; **Memory Loss/Concentration Problems**
Desipramine/Nortriptyline	Normal Metabolizer		
Desvenlafaxine		Poor Responder	**Depression**; **Fatigue**
Duloxetine	Normal Metabolizer		
Escitalopram	Intermediate Metabolizer	Poor Responder	**Heart Palpitations**; **Memory Loss/Concentration Problems**
Fluoxetine	Normal Metabolizer	Poor Responder	**Insomnia**
Fluvoxamine	Normal Metabolizer	Poor Responder	**Stomach Upset and Nausea**

Levomilnacipran		Poor Responder	**Anxiety**
Mirtazapine		Moderate Responder	
Nefazodone	Normal Metabolizer		
Paroxetine	Normal Metabolizer	Poor Responder	**Nausea - Stomach Upset**
Sertraline	Intermediate Metabolizer	Poor Responder	
SSRIs (Class Effects)		Poor Responder	
Venlafaxine	Normal Metabolizer	Poor Responder	**Increased Depression** **Fatigue**
Vilazodone		Moderate Responder	