CYP2D6 Pharmacogenetics Consultation
UF Health Personalized Medicine Program

HPI:

Patient full name (MRN 00000), is currently enrolled in the research study, Implementing Genomics in Practice (IGNITE): CYP2D6 Genotype-Guided Pain Management in Patients Undergoing Arthroplasty Surgery (IRB 201800445). This patient provided written consent on --/--/---- and was randomized to the genotype-guided group.

Drug allergies:
Add

CYP2D6 interacting drugs (as of --/--/----):
Add

Pharmacogenetic test results (--/--/----):
CYP2D6 Genotype: */*
CYP2D6 Phenotype: Normal Metabolizer (NM); fully functional CYP2D6 enzyme activity
NOTE: Because of a **CYP2D6 drug interaction**, this patient **may resemble a Poor Metabolizer (PM)** and have no CYP2D6 activity.

Interpretation:

Tramadol, codeine, and to a lesser extent hydrocodone and oxycodone are converted to more potent metabolites by the CYP2D6 enzyme. Based on the genotype result, this patient is predicted to be a normal metabolizer of CYP2D6 substrates. However, drug interactions can alter this patient's metabolizer status. ***** strongly inhibits the activity of CYP2D6 and can cause individuals with a normal CYP2D6 genotype to resemble poor metabolizers.** Poor metabolizer status is associated with decreased production of more potent forms of CYP2D6-dependent opioids. Therefore, this patient may get little to no pain relief from tramadol, codeine, hydrocodone, and oxycodone.

Recommendations:

Tramadol, codeine, hydrocodone, and oxycodone are **NOT RECOMMENDED** because this patient is predicted to be a **POOR METABOLIZER** of these drugs based on use of ***. **Consider an alternative opioid** such as morphine or hydromorphone that is not affected by CYP2D6 metabolism status, **a non-opioid** analgesic, **or discontinue use of ***** and start alternative therapy with a non-interacting drug.

For questions regarding this recommendation, please contact the UF Health Personalized Medicine Program:
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References:

1. Crews, K.R., et al. CPIC guidelines for *CYP2D6* genotype and codeine therapy: 2014 update. Clin Pharmacol Ther. 2014;95:376-82.
2. Stamer, U.M., et al. Impact of *CYP2D6* genotype on postoperative tramadol analgesia. Pain 2003;105:231-8.
3. FDA: Drug Development and Drug Interactions: Table of Substrates, Inhibitors and Inducers. https://www.fda.gov/Drugs/DevelopmentApprovalProcess/DevelopmentResources/DrugInteractionsLabeling/ucm093664.htm