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: */* DUP
CYP2D6 Phenotype: **Normal to Ultra-Rapid Metabolizer (NM-UM)**; possibly increased CYP2D6 enzyme activity

Interpretation:

Tramadol, codeine, and to a lesser extent hydrocodone and oxycodone are converted to more potent metabolites by the CYP2D6 enzyme. This patient's CYP2D6 metabolizer status cannot be definitely determined. The patient is possibly at risk for toxic plasma levels of potent metabolites of these drugs. Toxic metabolite levels can occur with normally prescribed doses and result in respiratory depression, respiratory arrest, shock, cardiac arrest or, in rare cases, death.

Recommendations:

Tramadol, codeine, hydrocodone, and oxycodone are **NOT RECOMMENDED** because this patient is predicted to be a **possible ULTRA-RAPID METABOLIZER** of these drugs. Reduced doses of tramadol, codeine, hydrocodone, or oxycodone may also lead to toxicity and are not recommended alternatives. **Consider an alternative opioid** such as morphine or hydromorphone that is not affected by CYP2D6 metabolism status **or a non-opioid** analgesic.

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.