

Publication

Pharmacogenetic Analysis Enables Optimization of Pain Therapy: A Case Report of Ineffective Oxycodone Therapy.

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Patients suffering from chronic pain may respond differently to analgesic medications. For some, pain relief is insufficient, while others experience side effects. Although pharmacogenetic testing is rarely performed in the context of analgesics, response to opiates, non-opioid analgesics, and antidepressants for the treatment of neuropathic pain can be affected by genetic variants. We describe a female patient who suffered from a complex chronic pain syndrome due to a disc hernia. Due to insufficient response to oxycodone, fentanyl, and morphine in addition to non-steroidal anti-inflammatory drug (NSAID)-induced side effects reported in the past, we performed panel-based pharmacogenotyping and compiled a medication recommendation. The ineffectiveness of opiates could be explained by a combined effect of the decreased activity in cytochrome P450 2D6 (CYP2D6), an increased activity in CYP3A, and an impaired drug response at the μ -opioid receptor. Decreased activity for CYP2C9 led to a slowed metabolism of ibuprofen and thus increased the risk for gastrointestinal side effects. Based on these findings we recommended hydromorphone and paracetamol, of which the metabolism was not affected by genetic variants. Our case report illustrates that an in-depth medication review including pharmacogenetic analysis can be helpful for patients with complex pain syndrome. Our approach highlights how genetic information could be applied to analyze a patient's history of medication ineffectiveness or poor tolerability and help to find better treatment options.

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