Prevalence of Exposure to Potential CYP450 Pharmacokinetic Drug-Drug Interactions Among Patients with Chronic Low Back Pain Taking Opioids

Joseph V. Pergolizzi¹, Sumedha A. Labhsetwar², R. Amy Puenpatom³, Seongjung Joo³, Rami H. Ben-Joseph⁴, Kent H. Summers⁵
¹Johns Hopkins University School of Medicine, Baltimore, MD, United States, ²NEMA Research, Naples, FL, United States, ³Endo Pharmaceuticals, Chadds Ford, PA, United States

Purpose

Drug-drug interactions (DDIs) have been defined as two or more drugs interacting in such a way that the effectiveness and/or toxicity of one or all drugs are changed. Patients taking more than one drug metabolized through the cytochrome P450 (CYP450) enzyme system, including some, but not all, opioids experience a drug-drug exposure (DDE), which may result in a potentially dangerous DDI.

Method

Using a retrospective analysis of a large commercial claims database and a Medicare database, we evaluated DDEs that have the potential to cause DDIs among chronic low back pain (cLBP) patients on long-term opioid analgesia, which metabolizes through the CYP450 enzyme system, concomitant with other CYP450-metabolized drug(s).

Results

The overall prevalence of DDEs among cLBP patients was 27%. Women had a higher prevalence of DDEs (30.6% vs. 22% for men). Patients aged 45 to 55 and 56 to 64 years had the highest prevalence of DDEs (30.4% and 29.8%, respectively), followed by patients 34 to 45 years (27.9%). For patients >65 years, the prevalence of DDEs was 23.1%. In general, the prevalence of DDEs was fairly consistent across age ranges in this population.

Conclusions

This study suggests that DDEs are common in the cLBP population. When selecting an opioid to treat cLBP, physicians should consider the potential for exposure of these patients to drugs that might unfavorably interact and, for that reason, the use of opioids that do not rely on the CYP450 system as their primary means of metabolism might be worthy of consideration.