Converting Among Routes and Formulations of Different Opioids

INTRODUCTION

You learned all about why we switch opioids in Chapter 1, and how to switch from one route of administration or dosage formulation to a different one using the same opioid in Chapter 2. Sometimes in clinical practice, we need to switch from one opioid to an entirely different opioid. Consider the case of PJ, a 22-year-old man who had all four impacted wisdom teeth extracted during one procedure. The dentist realized this would cause PJ moderate pain post-operatively, and she prescribed Percocet (5-mg oxycodone/325-mg acetaminophen per tablet), one to two tablets every 4 hours as needed. When PJ recovered from anesthesia at home, he felt dreadful and took two Percocet tablets. Within 1 hour, PJ was itching and scratching all over like nobody's business. The dentist realized that the pruritus PJ was experiencing was due to the oxycodone (probably due to histamine release, not a true allergy), and switched him to Vicodin (5-mg hydrocodone/300-mg acetaminophen per tablet). PJ took the Vicodin with good success and his pain resolved over the next few days. Conversion calculations weren't really necessary in this case because PJ was opioid naïve, and received a starting dose for both the Percocet and Vicodin prescriptions.

As discussed in Chapter 1, the development of adverse effects is only one reason why we might switch opioids. Additional reasons include lack of therapeutic response, change in the patient's clinical condition (e.g., inability to use original dosage formulation), and a myriad of other reasons such as opioid product availability; formulary restriction; and patient, caregiver, or prescriber health beliefs. In Chapter 2, we discussed how to switch between routes of administration and formulations of the *same* opioid; in this chapter, we will make the leap *between* opioids (potentially changing the route of administration and formulation as well!). We will hold our discussions of switching to and from methadone and fentanyl until later in the book—they have very specific dosing considerations and deserve devoted discussion. We will also hold discussions of conversions to and from continuous intravenous (IV) or subcutaneous (sub-Q) opioid infusions for a later chapter.

As you may recall, the concepts of **potency** (the intensity of analgesic effect for a given dose), **equianalgesia** (doses of two different opioids that provide the same

degree of pain relief), and **bioavailability** (the percentage of drug that is detected in the systemic circulation after its administration) were discussed in Chapter 1. These concepts were considered, along with the limited primary literature we have available, to craft an Equianalgesic Opioid Dosing table (see Chapter 1, Table 1-1). Remember the doses shown in Table 1-1 are *equivalent* doses, not actual doses.

Again referring to Chapter 1, tables such as Table 1-1 constitute rough estimates of dose equivalencies—most of the data used to determine these equivalencies are from single-dose cross-over studies, usually in acute pain patients, do not take into consideration patient-specific variables (e.g., age, body mass index [BMI], frailty, comorbidities, duration of exposure to opioids, concurrent use of other medications), and may be unidirectional. This is why we include a step in the opioid conversion calculation process where we carefully consider whether we should reduce the calculated dose (which is usually the case), use the calculated dose, or (rarely) increase the dose from that calculated. Where available, conversion ratios derived from switches done at steady state are introduced in this edition of *Demystifying*. Maybe by the fifth edition we'll have all solid data for our equianalgesic table! As a reminder, the five steps we use in opioid conversion calculations are shown in Chapter 1, Table 1-2. Enough talking already, let's jump into some calculations—you scream, I scream, we all scream for morphine (calculations!).
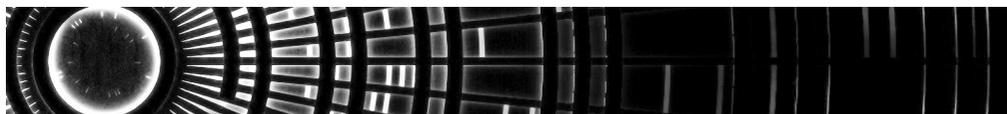
CASE 3.1

Switching from Oral Acetaminophen/Oxycodone to Oral Extended-Release Morphine

PA is a 44-year-old man with chronic low back pain, a consequence of a work-related injury in construction. He has undergone surgery several times, and his healthcare team doesn't believe his pain will improve with further surgical interventions. He has completed numerous physical therapy sessions and is adherent to his exercise plan. PA's current analgesic regimen consists of Percocet (10-mg oxycodone/325-mg acetaminophen per tablet), one to two tablets every 6 hours as needed, and pregabalin (Lyrica) 100 mg three times a day. PA tells you, his community pharmacist, that taking the Percocet every 6 hours means he always awakens in pain, and he would really prefer to take medications less often. He's tried cutting back, but that causes his pain to get much worse.

STEP 1—When you ask PA about the pain, he tells you that it is an achy, occasionally "grabbing" pain localized in the lumbosacral area (he points to the small of his back, down into his buttocks). Lifting anything greater than 15 or 20 pounds increases the pain, he can only stand about 30 minutes before his back starts to hurt, and his left leg tingles and eventually becomes numb. Rest, the analgesics, and the application of heat relieve the pain. When he tries to go without the Percocet, or when he awakens 4 to 6 hours after taking a dose, he rates the pain as a 7 or 8 (on a 0–10 scale; 0 = no pain, 10 = worst imaginable pain). When he takes eight Percocet tablets per day, his average pain rating is a 3 or 4 (on a 0–10 scale), which he finds acceptable. He also tells you that the Lyrica has reduced the tingling and