**Herbal Products and Health Risks**

Pharmacist Post-test

After completing this continuing education activity, pharmacists will be able to

* List herbal products associated with liver, kidney and heart damage
* Describe potential drug interactions with herbal medications
* Discuss the potential for contaminants in herbal products

**1. Which of the following agencies reviews and inspects herbal products before coming to market?**

A. United States Food and Drug Administration

B. National Center for Complementary and Alternative Medicine

C. International Association of Traditional Chinese Medicine

**2. John Goodman, a frequent customer at your pharmacy, comes to the counter to pick up his monthly medications. He asks, “Would it be a bother to have you check out the rest of my items here as well?” Always one to help a customer, you tell him, “Of course, that’s fine!” You notice he has a botanic extract tincture that claims to help with heartburn. The ingredient list includes greater celandine (*Chelidonium majus*). Mr. Goodman is also picking up his 30-day supply of Questran (cholestyramine). What organ dysfunction could be a concern?**

A. Liver injury

B. Kidney injury

C. Heart damage

**3. A patient presents to the emergency room suffering from acute kidney injury and liver injury. Lab tests show glutathione depletion, and the physician recommends N-acetylcysteine as a possible antidote. Upon opening the patient’s bag, you notice three natural product supplements: pennyroyal essential oils, germander weight loss tea, and impila fertility boost capsules. Which product may be responsible for BOTH the kidney and liver injury?**

A. Pennyroyal essential oils

B. Germander weight loss tea

C. Impila fertility boost capsules

**4. Mr. Goodman returns to your pharmacy. He explains he has been trying to live a healthier lifestyle, but has been feeling exceptionally tired after taking his as-needed alprazolam. When asked what over-the-counter products he uses, Mr. Goodman tells you, “Oh, you know the usual stuff: echinacea, garlic, ginger…” You are concerned because an interaction between alprazolam and \_\_\_\_\_\_ could be causing the excessive drowsiness.**

A. Echinacea

B. Garlic

C. Ginger

**5. Johnathan Bravo comes to the counter with a melancholic look on his face. “You know… getting older is not easy, especially when your wife looks so much better than you. I have tried everything: gym, new haircut, self-help books; and nothing seems to work.” He then proceeds to tell you about this supplement used in Southeast Kazakhstan that his gym buddy recommended. “Yeah, he says he’s seen guys lose weight, look better than ever and… well… you know… *have a better relationship with their wife*.” This sounds too good to be true; you are concerned this product has been \_\_\_\_\_\_\_\_\_\_\_\_\_.**

A. Mishandled

B. Mistaken

C. Mislabeled

**6. Which of the following are chemists mainly concerned about when they look for contaminants in herbal products?**

A. Metal

B. Glutathione

C. Poisons

**7. Which of the following patients is most at risk of a serious adverse event associated with henbane (*Hyoscyamus niger*)?**

A. A 27-year-old female with an irregular menstrual cycle

B. A 48-year-old male with a history of atrial fibrillation

C. A 62-year-old male with new onset major depressive disorder

**8. Mrs. Jin is a longtime customer of your pharmacy who is on warfarin therapy for her atrial fibrillation. Her dose has been stable for quite some time, but today, you are surprised to see a change to her warfarin dosing. You call her cardiologist to double check the prescription and she tells you, “Yeah, it’s really crazy; three years no change in INR and out of nowhere a 0.2-point decrease.” Upon picking up her prescription, you ask Mrs. Jin about complementary and alternative medicine use. What herbal supplement might be a possible explanation for Mrs. Jin’s INR decrease?**

A. Chamomile

B. Kava kava

C. American ginseng

**9. “These kids nowadays takin’ that codeine, and that awful dextromethorphan!” exclaimed Mr. O’Timer. “When I was a kid, and even now, all I ever took was licorice. My mom, bless her soul, would never let any poison enter MY body. To this day that’s all I use when I get a cold.” Trying to move him along before he inevitably tries to talk to you about politics, you stop as he mentions his busy day full of specialist appointments. Which specialist would be MOST LIKELY to know Mr. O’Timer is using licorice for his colds?**

A. Dentist

B. Podiatrist

C. Cardiologist

**10. Which of the following patients would be at greatest risk if they accidentally took Asian ginseng instead of American ginseng?**

A. A 23-year-old female taking fluvoxamine for obsessive compulsive disorder

B. A 40-year-old female taking ondansetron for chemotherapy-induced nausea

C. A 67-year-old male taking clopidogrel after a myocardial infarction