Please note – this learning resource has been produced by the GUMS Academic Team. There may be some minor errors in the questions/answers, and other possible answers that are not included below. Make sure to check with other resources.

**SCENARIO 1**

**Max, a 16-year-old with a severe allergy to peanuts is dared by a friend to administer his Epipen (IM adrenaline) when he is not having an anaphylactic attack.**

1. **Describe the various receptors adrenaline works on and contrast them to the cholinergic receptors. You may label the following diagram to help your understanding.**

**Diagram

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**2. What major drugs mimic these receptors?**

**2. Max began to exhibit tell-tale sympathetic signs. Compare and contrast the SNS and PNS systemic effects.**

**3. Why is adrenaline routinely given by IM injection instead of orally or IV?**

**4. Explain the concept of bioavailability in regards to oral vs IM vs IV administration**

**5. Describe what agonists and competitive and non-competitive antagonists are**

**SCENARIO 2**

**Mr. Roy has familial hypercholesterolemia and has been taking simvastatin, a HMG-CoA reductase inhibitor (statin), to lower his risk of CVS disease for the last 6 years. Today Mr Roy presents to his GP with coughing, fever and chest pain. The GP suspects a chest infection and prescribes clarithromycin (a macrolide antibiotic). Simvastatin is broken down via CYP450 system and clarithromycin is an inhibitor of the CYP450 pathway.**

**1. What concerns would you have by using these two medications together?**

**2. Briefly explain clearance (high and low, hepatic and renal) and how this relates to this scenario.**

**3. Briefly explain the cytochrome P450 system**

**4. List 2 options for appropriate management of Mr Roy’s condition**

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