PHC721 - CLINICAL PROBLEM SET # 1

Patient

Female, 62 years old

Chief Complaint

"My mouth feels dry. And I see some problem spots on my upper teeth. I am actually surprised because my previous visits did not indicate any imminent problems. Sorry for missing my last two checkups, but I had to take care of some medical issues, including my asthma and overactive bladder."

Background and/or Patient History

Asthma (diagnosed 6 months ago)
Idiopathic Hypertension (mild, formerly controlled with Propranolol and exercise)
Urinary incontinence (for ~ 10 months)

Medications:
- Albuterol (rescue inhaler)
- Salmeterol
- Fluticasone
- Ramipril (Altace®),
- Oxybutynin (Oxytrol®)
- GenTeal®, lubricant eye drops

Current Findings

Incipient carious lesions on teeth #6 & #11.
Oral soft tissue looks dry.

Temp: 98.4 F

BP: 135/90 mmHg

HR: 70 bpm

The restoration procedure went well. The tentative treatment plan to prevent future carious lesions includes Pilocarpine.

1. Which of the patient's medications would make the potential treatment of Xerostomia with Pilocarpine less effective? How would you translate 'less effective' to pharmacological terms, such as *drug potency* and *efficacy*?
2. Are there any CONTRAINDICATIONS to treatment with Pilocarpine in this patient?
3. What is the most likely reason that the patient's hypertension is no longer being treated with Propranolol?
4. What would be the expected effect of Propranolol on the efficacy and potency of Albuterol and Salmeterol?
5. What would be the expected effect of Pilocarpine on the efficacy and potency of Albuterol, Salmeterol, and Oxybutynin?

<u>Bonus Problem related to Session 2A: Pharmacodynamics !</u>

As presented in the lecture, Drug Dose-Response relationships are constructed using logarithmic, rather than arithmetic, scales for the drug dose (X-axis).

What does it tell you about the dynamics of drug binding to the receptor and/or the downstream signaling mechanisms?