Learning Objectives

• List the steps of the therapeutic experiment
• Describe how the therapeutic experiment and Pharmacy Patient Care Process (PPCP) are inter-related
• Given a patient case, apply the components of the therapeutic experiment

The Steps

• Problem identification
• Assessment
• Therapeutic objectives
• Available treatment modalities
• Treatment variables (patient and agent related variables)
• Treatment plan
• Monitoring: indices of therapeutic & toxic effect

Problem Identification

• Identify the objective and subjective data necessary to define the problem
• Use only known information; no assumptions!
Assessment

- Etiology
- Severity
- Why now?

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- Why now?

There doesn’t always have to be one

- Established criteria (e.g. New York Heart Association Classification, CURB-65 Score)

OR
- Mild: mild or no symptoms
- Moderate: symptoms impact quality of life (QOL)
- Severe: severe QOL restriction and/or short-term survival anticipated
- Life threatening: immediately life threatening

Assessment

- Etiology
- Severity
- Why now?

There doesn’t always have to be one

Therapeutic Objectives

- Specific
- Measurable
- Attainable
- Patient-centered

Example for a patient with diabetes
- Decrease the risk of morbidity
- Control blood glucose
- Delay progression of renal impairment
- Achieve hemoglobin A1c goal of < 7%

Available Modalities

- DO select options based on the assessment and therapeutic objectives
- DO include pharmacological and non-pharmacological options
- DO NOT cross things off the list based on patient or agent related variables (e.g. allergies, cost)

Example – uncomplicated urinary tract infection
Teaching Excellence Day - The Therapeutic Experiment

Patient Related Variables

- Inherent condition of the patient that will increase the risk of toxicity or decrease efficacy of a medication
- Common questions
  - Is a pre-existing condition/problem which is similar to a possible side effect a PRV?
  - Is insurance/financial always something to consider?

Agent Related Variables

- Properties of any agent which are characteristic of that agent and effect its use in a given situation
- Consider for medications that are on your initial list (nothing should be crossed off your list yet)
- ARV examples
  - Mechanism of action
  - Available dosage forms
  - Bioavailability of various formulations
  - Distribution in the body after absorption
  - Onset, peak, and duration of action
  - Half-life
  - Method of elimination from the body or detoxification
  - Adverse effects and toxicities (predictable versus idiosyncratic)
  - Cost (drug, administration, monitoring)

Treatment Plan

- Include medication(s), dose, route and frequency of administration
- Non-pharmacological plan to also include specific recommendations for the patient
- Include a specific duration of therapy for non-chronic therapies
- Administration
- Education

Monitoring - Indices of Effect

**Therapeutic**
- Refer back to therapeutic objectives
- Specific and measurable
- Subjective/objective
- Determine frequency of assessment

**Toxic**
- Discriminating subjective and objective parameters to determine if adverse effect present
- Frequency of monitoring
- Example
  - Hemoglobin NOT anemia

Think, pair and share
Ten Tips

1. Problem identification – have them identify the data **required** for the diagnosis
2. Severity – use established criteria when possible
3. Etiology does NOT equal risk factors
4. Why now – there isn’t always one
5. Therapeutic objectives – general statement like “prevent morbidity” or “prevent complications” don’t count

Ten Tips

6. Available modalities
   – tx options based on the assessment and therapeutic objectives
   – don’t cross things off “the list” before getting to patient/agent related variables
7. Patient related variables = intrinsic factors of the patient that will decrease efficacy/increase risk of toxicity
8. Indices of therapeutic effect – relate back to the therapeutic objectives
9. Indices of therapeutic/toxic effect – what you are going to evaluate not the outcome/adverse effect (e.g. serum creatinine vs. renal impairment)
10. NO ASSUMPTIONS