**History of Pharmacology**

**Pharmacology** - the study of what happens to the human being when a medication/drug is introduced to the body. With the intent to change the well being of the patient.
Morphine, colchicine, curare, cocaine the oldest medications that haven’t changed much since they were first invented in 1800’s.

10,000 different medicines.

*Formulary*- A list that a hospital or a health care provider make, medicines and how they are used in the hospital/health care setting.

Pharmacopoeia- A listing of standards of drug purity, strength, and directions.

United States Pharmacopoeia- Every year added of how to use and whatnot. Every drug available in the united states currently. EVERY medication.

Meds prescribed in the US need to have the USP label on it. (On the actual jar of medicine.)

**Therapeutic Response**- The intended effect of a medication.

**Adverse Response**- The unintended effect of a medication.

Food and Drug Administration

Black Box Warning- Warning in pharmacopoeia of what can happen. The RN needs to know everything there is to know about a medication. What its called, other names, therapeutic effect, potential side effects, observe the patient and see if what you wanted to happen, happen. When you gave it to patient, did something bad happen. Also teach patient/family how to take it.

FDA Approval- Takes years for a new medication to get to the patient. Even years, before the FDA will look at it.

Chemical names- not common.
Generic Name- only ONE name. (Acitomeniphan)
Trade/Brand Names- Tylenol, Advil, etc.

Controlled Substances and Schedules

Schedule 1- the MOST controlled. (Heroin)
Schedule 5- still controlled, but not as much.

Teratogens- Drugs with potential to cause defects in unborn child.
Category A- Least likely to cause damage to the baby.
Category D- Has been KNOWN to cause fetal damage to babies.
Category X- Unknown complications.
**Allergic reactions**- Hypersensitivity to the drug.

**Adverse reactions**- Things that can kill you.

Check 3 times when administering meds to the patient.

**Enteral**- Go into stomach/GI system.

**Parenteral**- IV, IM, SubQ.

**Pages 22-25 in Textbook. (Not important for this test.)**

**Pharmacokinetics**- The study of drug movement throughout the body. What does the body do to the medicine. (breaks it down, puts it into the cells, etc.) The RN needs to know why the patient is NOT having a therapeutic effect from the med.

**Pharmacodynamics**- What you WANT to happen after distributing the medicine.

Most medications are metabolized in the liver.

- Mouth
- Stomach
- Liver
- Intestines
- Target Place
- Excreted.

**First-Pass Effect**- Some medications go to liver first, liver excretes it all before it reaches the target.

**We want to avoid TOXIC concentrations.**

Theophylline
Dilantin
Lithium
Vancomycin- Therapeutic range
Digoxin-
These 5 drugs you check blood levels of.

**Half Life**- In medicine, when the medicine is starting to wear off, and half the dose is left. A medicine with a longer half life, sticks around longer than a medicine with a shorter half life. Adavan has a short half life, Valium has a long half life. They both have the same therapeutic effect.
Pharmacodynamics - Is what you gave it for, happening in your patient.

The higher the potency of the drug, the less of the drug you need.

Agonist - Does the same thing as the other medicine.
Antagonist - 2 medicines are antagonist if they reverse the effect, or prevent the medicine from working.

Sentinel Events - bad occasions, that need to be reported. (Mistakes.)

Medication Reconciliation - Any time a patient moves from one place to another, the healthcare provider needs to review the medication list, and tell the patient which medications that they need to be taking.

Educate patients with your knowledge of medications.

Drug Administration During Pregnancy and Lactation
- Taking care of 2 patients, not just mom, baby as well.
- Some drugs pass to baby across placenta or through breast milk.
- Babies can present signs of drug addiction.

Teratogen
- Drugs that affect fetus’

Embryonic Period - Week 3-8 is the period of MAXIMUM sensitivity to medications.

Drugs secreted into Breast Milk
- Baby can become sedated from breast milk.

Half Life - The PEAK of the drug, when half of the drug is used up, half of the action is used up, the other half is sticking around longer.

Recommendations for drug use during lactation..
- Drugs with shorter half lives are preferable.
- All OTC herbal products and dietary supplements should be avoided..

Infants and Pharmacotherapy..
- Birth to first 12 months..
- Safety of child is primary
- Have child ingest all medication; difficult to estimate how much lost if spit up..
- Nurse/parent should be aware of special procedures for drug administration.
Medications are based off of Body Surface Area (BSA). Infants/children use lower doses, due to less surface area, weight, height...

Children/Infants- either injection or liquid medicine, almost never by pill...

Medicating children/infants, Good administration skills, and really pay attention to dosages !!!!

Toddlers and Pharmacotherapy
- Period from 1-3 years
- proper storage of drugs, no toddler access to medications.
- injections are given at specific locations with toddlers (outside of thigh.)

Adolescents and Pharmacotherapy
- need understanding and respect.
- educate about hazards of tobacco and substance abuse
- need privacy and control
- allow time for questions.

Young Adults and pharmacotherapy
- risk taking behaviors, STD’s. immuno-related conditions.

Middle Aged Adults and Pharmacotherapy
- changes begin around 45 years of age

Polypharmacy- taking medications concurrently..

Ethnicity and Culture

Ethnicity- Biologic and Genetic Similarities
Culture- set of beliefs, values, and norms that provide meaning for an individual or group.
Both have influence on medication outcomes.

Beta Blockers do not work in the African American population.

Influence of Illiteracy on Health Care
- 48% of English speaking population is functionally illiterate.

Gender Issues
- Body Composition
- Cerebral blood flow
- Rate of elimination of drug
- Side effects of medication can be gender specific and affect compliance
- Women seek health care more readily than males...

**Complementary and Alternative Medicine (CAM)**
- There are HERBAL to DRUG reactions,
  “Natural does NOT mean safer..”

**Substance Abuse.**
- Benzodiazepine- longer half life, dangerous because drug may stay active for several weeks..
- Abused drugs are not always illegal, prescription drugs, household items
- People may look like they work on wall street, never would guess they abuse substances/addictions..
- Medications are used for therapeutic or recreational purposes..

Withdrawal Syndrome..
- Prescription drugs may be used to reduce severity..

**MEDICATION WITHDRAWAL CAN MAKE A PATIENT PHYSIOLOGICAL ILL, OR KILL A PATIENT WHEN STOPPED ABRUPTLY, CAN ALSO MAKE PATIENTS PSYCHOLOGICALLY UNCOMFORTABLE.**

Cipro is the preventative of anthrax...

Poisoning treatments
  - Single dose activated charcoal, If poison is carbon-based

Crushed carbon, either drink, or Nasogastric tube, given to patient within 60 minutes of poisioning. Will bind to posion, Can be thrown up, stool, urine, etc..

Syrup of Ipecac
used to induce vomiting..