NR566 Final Exam Study Guide

Week 5

Chapter 87- Drugs for the EYE

- Glaucoma: group of diseases characterized by a decrease in peripheral vision secondary to optic nerve damage. Leading cause of preventable blindness.
  - Angle-closure glaucoma: displacement of the iris preventing exit of aqueous humor from the anterior chamber. IOP increases rapidly and to dangerous levels. Develops suddenly and is extremely painful. In the absence of treatment, irreversible loss of vision occurs in 1 to 2 days. Short term therapy and surgery.
    - Pilocarpine: emergency tx
  - *Primary Open-Angle Glaucoma (POAG)* is directed at reducing elevated IOP. No cure but can slow progression of disease.
    - 1st line
      - ß blockers: **Timolol**, Carteolol, Levobunolol, Metipranolo, **Betaxolol**- indicated for patients with asthma or COPD
        - MOA: Decreased aqueous humor formation.
        - **Adverse effects**: **Heart block, bradycardia, and bronchospasm. Bexatolol a selective drug can cause hypotension. May worse heart failure.**
      - α2-adrenergic agonists: Apraclonidine- short term therapy. Brimonidine (Lumify)- long term therapy.
        - MOA: Decreased aqueous humor formation
        - Adverse effects: Headache, dry mouth, dry nose, altered taste, conjunctivitis, lid reactions, and pruritus
      - prostaglandin analogs: Latanoprost, Latanoprostenebunod, Travoprost, Bimatoprost
        - MOA: lower IOP primarily by facilitating the outflow of aqueous humor, partly through the relaxation of the ciliary muscle.
        - **Adverse effects: Heightened brown pigmentation of the iris and eyelid, migraines**
        - Considered first line because of less side affects
    - 2nd line:
      - cholinergic drugs: Pilocarpine- emergency treatment of ACG, echothiophate
      - carbonic anhydrase inhibitors: Acetazolamide, Methazolamide, Dorzolamide, Brinzolamide
- Allergic Conjunctivitis: Inflammation of the conjunctiva in response to an allergen. Primary symptoms are itching, burning, and a thin, watery discharge. In addition, the conjunctivae are usually red and congested.
  - Mast cell stabilizers: **Cromolyn**
    - MOA: prevent release of inflammatory mediators. relief takes several days.
  - Histamine-1 (H1)-receptor antagonists Emedastine, olopatadine
    - MOA: blocks H1 receptors to provide immediate relief.
- Ocular Decongestants: phenylephrine, naphazoline, oxymetazoline, brimonidine, and tetrahydrozoline

- weak solutions of adrenergic agonists applied topically to constrict dilated conjunctival blood vessels- reduce redness caused by minor irritation.
- Contraindications: hypertension, thyrotoxicosis, eye conditions like injury, infection, or glaucoma

Chapter 89- Drugs for the EAR

- Otitis Externa "Swimmer's Ear"- inflammation of the external auditory canal usually caused by bacterial infection, with symptoms including ear pain, pruritus, and discharge. Management is focused on pain and antimicrobial.
  - Treatment for clients aged 6-12 months with or without TM perforation treatment includes ciprofloxacin 0.3% plus dexamethasone 0.1%, four drops every 12 hours.
  - Ciprofloxacin with hydrocortisone or dexamethasone drops are appropriate for clients with or without TM perforation.
  - Clients aged one year or older with or without TM perforation treatment include ofloxacin otic 0.3%, five drops twice daily.

Chapter 88- Drugs for SKIN

- Acne: chronic skin disorder beginning during puberty. Treatment is prolonged.
  - Combination Therapy: retinoids, Abx, and keratolytics
  - Topical Agent Indications: drug selection is based on severity and presentation (Mild-Moderate). Severe symptoms require PO.
  - Topical Keratolytic Agents: Salicylic and Azelaic acid.
    - Function: promote shedding of the outermost layer of the epidermal skin cells.
  - Benzoyl Peroxide: first-line drug for mild to moderate acne, is both an antibiotic and keratolytic. release of active oxygen when suppressing P. acnes

Chapter 63- Drugs for NOSE

- Allergic Rhinitis: triggered by an allergen exposure leading to inflammation of the nasal mucosa. This inflammation is mediated by mast cells, CD4-positive T cells, B cells, macrophages, and eosinophils, causing arteriolar dilation and release of histamine and leukotrienes. Can be seasonal or perennial. Clear discharge. Allergic shiners. Itching. Asthma triggered.
  - Intranasal glucocorticoids: budesonide (Rhinocort Aqua), fluticasone propionate (Flonase), and triamcinolone (Nasacort Allergy 24 hours)
    - Pharmacologic Effects: Full dose given initially, and after symptom control, dose is reduced. Maximal affects require a week or more. Initial response can be seen within hours. If nasal congestion is present, a topical decongestion prior to glucocorticoid will improve response.
    - Allergic Reaction Management
    - MOA: penetrate the cell membrane, and bind with receptors in the cytoplasm, converting them into active form, then migrates to the cell nucleus binding to DNA and altering transcription. anti-inflammatory -prevent congestion, rhinorrhea, sneezing, nasal itching, and erythema
    - Adverse effects: mild. drying of the nasal mucosa and a burning or itching sensation. Sore throat, epistaxis, and headache. Rare adrenal suppression and slowing of linear of growth.
  - antihistamines (oral and intranasal)
    - Indication: relieve sneezing, rhinorrhea, and nasal itching; however, they do not reduce nasal congestion
    - Adverse Effects:

        - 1st Generation (diphenhydramine): sedating, anticholinergic effects like drying mucosa, can cross blood brain barrier, not great bc sedation in infants. Small doses in older adults.
        - 2nd Generation (cetirizine, fexofenadine, loratadine): non sedating
    - Lifespan Considerations: administered on a regular basis throughout the allergy season, even when symptoms are absent, to prevent an initial histamine receptor activation
    - Intranasal: azelastine (Astelin and Astepro) and olopatadine (Patanase) headaches and bad taste
    - Fexofenadine (Allegra)
        - Food Drug Interactions: not drink fruit juices within 4 hours before dosing or 1 to 2 hours after dosing
- Intranasal cromolyn sodium (Nasalcrom)
    - Indications: reduces symptoms by suppressing the release of histamine and other inflammatory mediators from mast cells. Best for prophylaxis. Takes long response.
- Sympathomimetics/decongestants (phenylephrine, Sudafed, Afrin) "-lines", PO or nasal
    - MOA: reduce nasal congestion by activating α1-adrenergic receptors on nasal blood vessels. cause shrinkage of swollen membranes followed by nasal drainage.
    - Indications: relieve congestion in allergic rhinitis not other symptoms. That are used in conditions like sinusitis and cold.
    - Adverse Effects: rebound congestion that can be treated with INGC, CNS stimulation like irritability, cardio like vasoconstriction, abuse for the stimulative effects.
- Anticholinergic agent: Ipratropium bromide (Atrovent)- nasal spray for RA
    - MOA: Blockade of cholinergic receptors inhibits secretions from the serous and seromucous glands lining the nasal mucosa and decreases rhinorrhea
    - Does not decrease sneezing, nasal congestion, or postnasal drip
- Leukotriene Antagonist PO-Montelukast
    - MOA: blocking binding of leukotrienes to their receptors. blocking leukotriene receptors, montelukast relieves nasal congestion, although it has little effect on sneezing or itching.
    - Indications: seasonal and perennial allergic rhinitis, asthma