The Basics of Geriatric Pharmacology

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Learning Objectives

- Define the terms polypharmacy and prescribing/medication cascade
- Describe the elements of a thorough medication history and reconciliation
- Develop strategies to collect a thorough medication history/reconciliation
- Utilize the Beers criteria to identify potentially inappropriate use of medication in the elderly
- Identify common medications that may affect nutrition (appetite, taste, weight, or dry mouth)
Medication use in the elderly

Figure 2. Percentage of prescription drugs used in the past month, by age: United States, 2007–2008

- Adults ≥65 years old make up 12% of population, but account for 34% of all prescriptions

https://www.cdc.gov/nchs/data/databriefs/db42.htm
Medication Related Problems: Common, Costly, Preventable

- Total estimated healthcare expenditure related to potentially inappropriate medications is $7.2 billion
- 27% of adverse events in primary care offices
- 37% of adverse events in nursing homes
- 380,000-450,000 adverse drug events occur annually in hospitals

JAGS 2012 Arch Int Med 2009
Medication management in older adults

Increased risk of adverse effects:

- Multiple disease states
- Multiple chronic medications
- Altered response to medications (pharmacokinetics/ pharmacodynamics)
- Drug-drug interactions
- Adverse drug reactions
Practical Contributing Factors

- Time constraints during a visit
- Multiple providers
- Lack of communication among providers
- Long/multiple prescription medication lists
- Use of non-prescription medications and supplements
- All of the above may lead to inaccurate medication lists
What is Medication Reconciliation?

• From the Joint Commission:
  – The process of comparing a patient's medication orders to all of the medications that the patient has been taking.
  – Done to avoid medication errors such as:
    • omissions
    • duplications
    • dosing errors
    • drug interactions
  – Should be done at every transition of care in which new medications are ordered or existing orders are rewritten.
  – Transitions in care include changes in setting, service, practitioner or level of care.

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Medication Reconciliation (cont)

• Five step process:
  – Develop a list of current medications (medication history)
  – Develop a list of medications to be prescribed
  – Compare the medications on the two lists
  – Make clinical decisions based on the comparison
  – Communicate the new list to appropriate caregivers and to the patient
General Guidelines

• Remind patients to bring all medications and medication lists to **every** visit

• Ask open-ended questions

• Ask about over the counter medications?
  – Sleep? Allergies? Pain? Recent illness?
  – Ask about packaging/colors when patient can’t remember specific

• Ask about vitamins and supplements

• Ask follow up questions when discrepancies are noted (Who, What, When, Where, Why, How much?)

• Document everything
Search for answers

• Look at medication bottles, lists, and pillboxes
  – Last filled
  – Expiration
  – Look inside bottles
• Call pharmacy for last fill information
• Ask your team pharmacist
Allergies

• What allergies do you have to medications?

• What happened when you took that medication in the past?
  • Intolerance
  • Side effect
  • True allergy
What is Polypharmacy?

What is polypharmacy? A systematic review of definitions

Nashwa Masnoon,¹,² Sepehr Shakib,³,⁴ Lisa Kalisch-Ellett,¹ and Gillian E. Caughey¹,³,⁴

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• No clear consensus definition
• Numerical alone vs. appropriateness
• Consider indication, efficacy, and safety in combination
What is Polypharmacy?

• The use of unnecessary medications regardless of the number of medications being taken
• Taking more medications than clinically necessary
Who is at risk for polypharmacy?

• Any Geriatric Patient

• A medication list of ≥ 5 medications
Causes of polypharmacy

- Medication with no apparent indication
- Use of duplicative medications
- Drug-drug interactions
- Drug-disease interactions
- Inappropriate doses
- Adverse drug reactions
- Prescribing cascade
A drug-induced adverse event which mimics symptoms of another disease which is being treated with more medications.
Examples of prescribing cascades

- Activating medication for depression
  - Causes insomnia and anxiety
    - Insomnia and anxiety treated with sedatives
      - Increased fall risk
      - More complicated regimen
Amlodipine for hypertension

Causes lower extremity edema
- Add on diuretic
  - Increased urination
  - Increased fall risk
  - Drug interactions
  - Electrolyte changes
  - Bone fractures

Cause heartburn
- Add on proton pump inhibitor
  - C. Diff infection (CDI)
  - Others? CAP, B12 deficiency, kidney disease, dementia
The Mantra of Geriatric Pharmacology

“Any symptom in an elderly patient should be considered a drug side effect until proven otherwise”

~Jerry Gurwitz MD
What is the Beers list?

THE 20 MOST POPULAR BEERS IN AMERICA

1. Bud Light
2. Coors Light
3. Budweiser
4. Miller Lite
5. Corona Extra
6. Natural Light
7. Busch Light
8. Michelob Ultra
9. Busch
10. Heineken
11. Modelo Especial
12. Keystone Light
13. Miller High Life
14. Natural Ice
15. Bud Light Platinum
16. Pabst Blue Ribbon
17. Bud Light Lime
18. Bud Ice
19. Yuengling Lager
20. Bud Lite Lime Straw-Ber-Rita
The American Geriatrics Society

Beers Criteria

- A list of potentially inappropriate medications for older adults published by the American Geriatrics Society
- Originated in the late 1980's as a result of nation-wide reports of overmedication of nursing home patients
- Drugs were used as chemical restraints
- Today it is applied to any setting: SNF's, Hospital, Ambulatory Care
What is on the Beers list (criteria)

- Drugs which are likely to make the patient more confused
- Drugs which increase the risk for falling
- Drugs which can cause increased likelihood of side effects or toxicity
- Should be used as a guide only
- It is OK to use medications on this list as long as the patient is adequately monitored and benefits outweigh risks
What is on the Beers list?

- Anticholinergics: cause constipation, dry mouth and eyes, urinary retention, confusion
  - Can’t see, can’t pee, can’t spit, can’t sh*t
- Sedative Hypnotics
- Anti-depressants
- Anti-psychotic medications
- Anti-inflammatory analgesics
- Some Antibiotics
- Some cardiac medications
Medications with Strong Anticholinergic Side Effects

- Antihistamines: diphenhydramine (Benadryl)
- Anti-Parkinson's agents: trihexyphenidyl (Artane) benztropine (Cogentin)
- Skeletal muscle relaxants: cyclobenzaprine (Flexeril)
- Tricyclic antidepressants: amitriptyline
- Antidepressants: paroxetine (Paxil)
- Antipsychotics
- Diabetes medications: glyburide, sliding scale insulin
- Urinary incontinence medications: oxybutynin (Ditropan)
- GI antispasmodics: dicyclomine (Bentyl), belladonna, hyoscyamine (Levsin)
- Antiemetics: prochlorperazine (Compazine), promethazine (Phenergan)
- The concept of “anti-cholinergic load”
Questions