Physician's Guide to Polypharmacy in Elderly Patients

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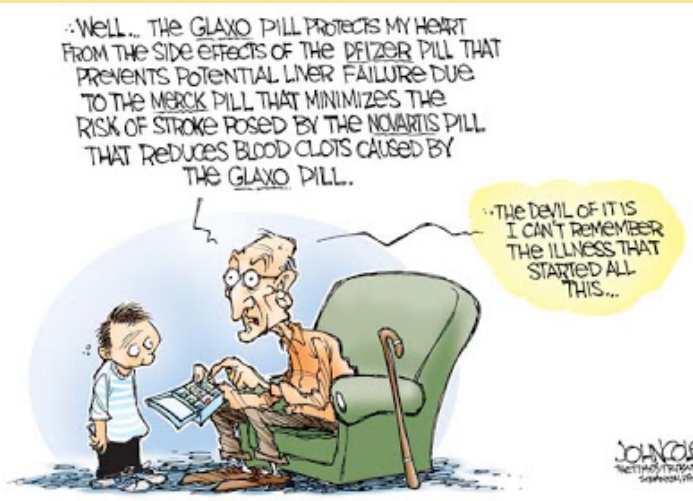

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Goal

- Question the appropriateness of all medications in the context of the patient frequently

Pharmacovigilance

- The detection, assessment, understanding and prevention of adverse events related to all medical therapies

Topics Covered

- What is polypharmacy
- Why is it so common?
- Who is affected?
- Why is it important?
- What can you do?
- How do you do it?

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Popular Definitions

- Five or more medications
- Simultaneous and long term use of different drugs by the same individual
- Potentially inappropriate medications
- Use of medications which are not clinically indicated
- Use of medications concurrently to correct adverse effects

Source: BMC Geriatr. 2017; 17: 230. Published online 2017 Oct 10. doi: 10.1186/s12877-017-0621-2

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Practical Definition

- The use of medication to treat disease without regard for:
  - Adverse effects and interactions
  - Risk vs benefit
  - Patient wishes for treatment
  - Patient ability for compliance
  - Life expectancy
  - Limitations of clinical practice guidelines

Statistics

- Affects around 40% of home-dwelling elderly
- Average number of meds increases with age
- 15 meds in 60's
- 20 meds in 80's
- Over 100,000 deaths annually

Why is it so common?

- Longer life expectancy = more comorbitities
- Clinical practice guidelines for chronic disease
  - Encourage addition of meds in step fashion
  - Adherence linked to pay-for-performance
  - Often exclude older population
- Multiple treating physicians
- Patient access to OTC meds
- Multimorbidity

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What is the harm?

- Higher medication costs
- Adverse drug reactions
- Drug interactions
- Medication nonadherence
- Decreased functional status
- Cognitive impairment
- Falls
- Nutritional deficiency

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Where to start?

- Ask your patient
- Review labs and vitals
- Determine effect on quality-of-life
- Cost, lack of generic
- Ease of administration

Where to start?

- Start with an accurate med list
- Identify meds with highest harm potential
- Justify each med for benefit vs harm
- Prioritize based on:
  - Current benefit
  - Adverse withdrawal events
  - Disease rebound

2015 AGS Beers Criteria

- 2012 criteria updated by 13 geriatrics experts
- Provides guidance for potentially inappropriate medication use
- Medication recommendations based on graded body of evidence
- Gives rationale and strength of evidence
- Applies to all non-hospice geriatric patients

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How to start?

- Which meds can be stopped today?
- Create a discontinuation regimen
- Frequent office visits
- Be sure to query patient for adverse event
- Ensure patient is comfortable with plan

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Pain Control

- Multiple types of pain
  - Arthritic joint pain
  - Diabetic neuropathic pain
  - Degenerative neuropathic pain
  - Myalgia

Pain Control

- Altered pain perception
  - Decreased expression of pain
    - Sensory impairment
    - Dementia
    - Depression
  - Decreased expression of medication benefit
    - Need to use 'signs of pain' to determine benefit
    - Need to rely on caregivers input

Pain Control

- Non-opiate analgesics
  - Acetaminophen
    - Safe but only mild effect
    - Max dose 3000mg/day
  - NSAIDS
    - Strong anti-inflammatory but more ADE
    - Nephrotoxicity, gastric ulcers, fluid retention
  - Topicals – safe but less effective

Pain Control

- Opiate analgesics
  - Constant monitoring required for ADE
    - Neurologic – delirium, dizziness, ataxia
    - GI – constipation, nausea
  - Benefit/risk needs regular evaluation
    - Baseline pain level
    - Breakthrough pain frequency
  - Start low and slow

Anticoagulation

- Stroke prophylaxis due to atrial fibrillation is most common chronic indication
  - CHADS2 to justify use
  - Frequent lab work to ensure therapeutics
- DVT treatment is the most common short-term indication

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Anticoagulation

- Risk vs benefit
  - CPG for use are clear
  - There are no defined guideline to D/C
  - Becomes PCP decision
    - Patient and family must be fully informed
    - Risk must be documented
      - Falls
      - Bleeding
      - Administration issues
      - Monitoring issues

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Anticoagulation

- Risk vs benefit
  - Still overwhelming evidence of benefit
  - Anticoagulation clinics and home testing
  - Regular patient and caregiver education
  - Regular evaluation of functional status
  - Regular evaluation of mental status

Kapoor J. (2007) Letter to the Editor, "The management of atrial fibrillation". Lancet 370: 1608–1608

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Anticoagulation

- Warfarin vs newer agents
  - Cost – warfarin is inexpensive
  - Therapeutic range – warfarin can be difficult to maintain
  - Monitoring – need for frequent monitor can be burdensome
  - Reversibility – warfarin can be reversed relatively easily

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Anticoagulation

- Pharmacology
  - Warfarin pharmacology
    - CYP450 metabolism (6 substrates)
    - Half-life up to 3 days
    - Daily dosing
  - Xaralto pharmacology
    - CYP450 metabolism (3 substrates)
    - Half-life up to 12 hours
    - Daily dosing

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Anticoagulation

- Pharmacology
  - Eliquis pharmacology
    - CYP450 metabolism (6 substrates)
    - Half-life 12 hours
    - BID dosing
  - Pradaxa pharmacology
    - Hepatic metabolism, non-CYP450
    - Half-life 12 hours
    - BID dosing

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Examples

- Docusate (Colace)
  - Recent studies show no real benefit
  - Consider change to fiber supplement
  - Consider possible side effect of other meds

McRorie JW, Daggy BP, Morel JG, Diersing PS, Miner PB, Robinson M. Psyllium is superior to docusate sodium for treatment of chronic constipation. Aliment Pharmacol Ther. 1998;12:491-917

Examples

- Antibiotic use for dental procedures
  - No evidence to support use for patients with prosthetic joints per AAOS
  - No longer recommended to prevent endocarditis per American Dental Association
  - Exceptions for invasive procedures and immunocompromised patients

Dajani AS, Taubert KA, Wilson W, et al. Prevention of bacterial endocarditis: recommendations by the American Heart Association. Clin Infect Dis. 1997;25:1448-1458.

Hamedani S. A clinical practice update on the latest AAOS/ADA guideline (December 2012) on prevention of orthopaedic implant infection in dental patients. J Dentistry. 2013;14:49-52.

Examples

- Proton pump inhibitors
  - Indicated for *H. pylori*, GI bleed, symptomatic GERD, short-term ulcer prophylaxis, erosive esophagitis
  - Interferes with medication and nutrient absorption
  - Increased risk of *C. difficile* colitis
  - Can contribute to acute/chronic renal failure

Xie Y, Bowe B, Li T, Xian H, Yan Y, Al-Aly Z. Risk of death among users of proton pump inhibitors: a longitudinal observational cohort study of United States veterans. BMJ Open. 2017;7:e015735.

Examples

- Statins
  - AHA guidelines have increased use
  - Paucity of evidence for primary prevention
  - Good evidence for secondary prevention
  - Muscle symptoms increase with age
  - Significant drug-drug interactions

Stone NJ, Robinson JG, Lichtenstein AH, et al. 2013 ACC/AHA guideline on the treatment of blood cholesterol to reduce atherosclerotic cardiovascular risk in adults: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines. J Am Coll Cardiol. 2014;63(25 Pt B):2889-2934.

Ridker PM, Lonn E, Paynter NP, Glynn R, Yusuf S. Primary prevention with statin therapy in the elderly: new meta-analyses from the contemporary JUPITER and HOPE-3 randomized trials. Circulation. 2017;135:1979-1981.

Examples

- Benzodiazepines and sedatives
  - Strongly correlated with increased falls
  - Avoid combinations of meds
  - Avoid sedative use to treat insomnia from SSRIs
  - Use strongly cautioned on Beers Criteria

Díaz-Gutiérrez MJ, Martínez-Cengotitabengoa M, Sáez de Adana E, et al. Relationship between the use of benzodiazepines and falls in older adults: A systematic review. Maturitas. 2017;101:17-22

Yu NW, Chen PJ, Tsai HJ, et al. Association of benzodiazepine and Z-drug use with the risk of hospitalisation for fall-related injuries among older people: a nationwide nested case-control study in Taiwan. BMC Geriatr. 2017;17:140.

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Examples

- Beta blockers
  - Recommended for post-MI and ACS patients
  - Questionable long-term benefit
  - Poor antihypertensive choice
  - Side effects increase with age
  - Increased falls due to syncope/bradycardia
  - Use lowest effective dose or discontinue

Smith SC Jr, Benjamin EJ, Bonow RO, et al. AHA/ACCF secondary prevention and risk reduction therapy for patients with coronary and other atherosclerotic vascular disease: 2011 update: a guideline from the American Heart Association and American College of Cardiology Foundation endorsed by the World Heart Federation and the Preventive Cardiovascular Nurses Association. J Am Coll Cardiol. 2011;58:2432-2446.

Bangalore S, Makani H, Radford M, et al. Clinical outcomes with β-blockers for myocardial infarction: a meta-analysis of randomized trials. Am J Med. 2014;127:939-853.

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Examples

- Antimuscarinics
  - Commonly used for overactive bladder (OAB)
  - Anticholinergic effects usually outweigh benefit
    - Constipation
    - Dry mucous membranes, dysphagia
    - Bradycardia
    - Light sensitivity due to pupil dilation

Shamliyan T, Wyman JF, Ramakrishnan R, Sainfort F, Kane RL Benefits and harms of pharmacologic treatment for urinary incontinence in women: a systematic review. Ann Intern Med. 2012;156:861.

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Examples

- Diabetic agents
  - Metformin
    - First line oral agent
    - High incidence of dose-dependent GI symptoms
    - Contraindicated with GFR < 30
  - Sulfonylurea (Glyburide, Glipizide)
    - Use discouraged on Beers Criteria
    - High incidence of hypoglycemia
    - Can precipitate falls

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Examples

- Neutraceuticals
  - Only treat actual deficiencies (Vit. D, B12, Ca, etc.)
  - Linus Pauling made vitamin C famous
  - Vitamin supplementation has been debunked by many very large studies since 1942 – original fake news!
    - Vitamin C does not prevent/cure colds
    - Vitamin E increases risk of heart failure
    - Multivitamins increase prostate risk 2x

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Examples

- Neutraceuticals
  - Antioxidants increase risk of CAD and cancer
    - Supplements upset oxidative balance
    - Not endorsed by any medical organization
    - Free radicals thought to be endogenous chemotherapy
  - Herbal formulations are proprietary
    - Difficult to predict interactions
    - Often cite highly biased studies

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Summary

- Necessary evil for many patients with multimorbidity
- Clinical practice guidelines often exclude elderly population
- Will become more prevalent as populations ages
- Make small changes and monitor frequently
- Start new medications with caution

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Soapbox

- A patient's med list is your responsibility
- Do not delay action because another physician started the medication
- Explain your rationale to the patient
- Listen for feedback and understanding
- Clinical practice guidelines will not protect you from inaction and bad judgement

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