Polypharmacy: Too Much of a Good Thing

Kristy Butler, PharmD, BCPS, BCACP, FASHP
Manager, Clinical Pharmacy Specialists
Providence Medical Group, Oregon Region

Objectives

• Discuss the concept of polypharmacy and potential drug-drug interactions, particularly in high risk, high cost, complex patients.

• List prescribing practices that help reduce the risk of an adverse drug event in older adults.

• Discuss the concept of integrating clinical pharmacy services into the care and management of high risk, high-cost, complex patients.

Disclosures

• I have no conflicts of interest to disclose.
What is Polypharmacy?

- No standard definitions
  - Use of > X concurrent medications (X = 5, 6, 10, ??)
  - Use of “inappropriate” medications
    - “… suggesting indiscriminate, unscientific, or excessive prescription.”
  - Use of medication(s) without a corresponding diagnosis
    - Potentially inappropriate therapies (PIT)

The Polypharmacy Problem

- 10-29% Americans take > 5 Rx meds
  - ~40% Americans > 65 y.o. take > 5 Rx meds
- Medicare patients with 5+ chronic conditions
  - Average of 13 different physicians (!)
  - > 50 different Rx’s filled each year
- Rx written in 75% of all physician office visits
  = 2.6 Billion Rx’s in 2010
- Polypharmacy costs >$50 Billion/year

Drug-Related Problems

- Drug-related problems:
  - Untreated indications
  - Drug-use without indication
  - Improper drug selection
  - Sub-therapeutic doses
  - Failure to receive drugs
  - Overdose
  - ADEs
  - Drug-interactions

- Ambulatory setting
  - Costs = $290 Billion/year in avoidable medical spending
  - 1.1 million deaths/year

ADEs Exponentially Increase

"Thinking Outside the Pillbox: A System-wide Approach to Improving Patient Medication Adherence for Chronic Disease" NEHI Research Brief – Appendix 1, August 2009
Adverse Drug Events

- Complications (> in elderly)
  - Falls & fractures
  - Electrolyte disorders
  - Renal dysfunction
  - Cardiac failure
  - Anorexia
  - SIADH
- 10-23% of ED and hospital admissions
  - 40-70% preventable

High Risk Patient Characteristics

- ≥ 85 years of age
- Low body wt/BMI
- > 6 active chronic medical dx’s
- Atypical presentation of illness
- Recent hospitalization
- H/O previous ADE
- ↓ cognition, vision, hearing or dexterity
- Factors affecting adherence
- # of meds

Causes of Polypharmacy

- Multiple prescribers & pharmacies
- Treating adverse drug effects
- Continuing discontinued meds
- Self medicating with OTCs
- Use of others’ medications
- The power of inertia
- Limited time for shared decision making discussions for treatments and diagnostics

The Balancing Act
Drug-Drug Interactions

• Possible when ≥ 2 meds used
  – No clinically relevant effect
  – ≥ 1 antagonized/diminished
  – ≥ 1 enhanced/augmented

  – Pharmacokinetic & Pharmacodynamic elements

“Drug-Body” Interactions

• Pharmacokinetic changes
  – “What the body does to the drug”
    • Absorption
    • Distribution
    • Metabolism
    • Excretion
    • Half-life

  – All change with aging

“Drug-Body” Interactions

• Pharmacodynamic changes
  – “What the drug does to the body”
    • Changes to receptor #, affinity or post-receptor cellular effects
      – ↓ or ↑ sensitivity to effects/side effects
    • Changes to autonomic system
      – ↓ sensitivity to β-receptors
    • Changes to BBB
      – ↑ response to CNS-active meds
    • Changes to homeostatic mechanisms
      – ↓ plasma volume, ↓ vasomotor regulation, ↑ morbidity from infections, impaired glucose tolerance, etc.

Drug-Disease Interactions

• Comorbidities & polyphathologies
  – Many meds can worsen certain conditions
    • Contraindications/Precautions

• Other barriers to successful therapy
  – Cognitive changes
  – Vision, hearing & dexterity changes
  – Communication barriers
Potentially Inappropriate Therapies

- Inappropriate dose
- Inappropriate frequency
- Inappropriate length of therapy
- No indication
- High risk of ADEs

Beers’ Criteria

- Expert consensus developed through extensive literature review and questionnaire evaluations
- Adopted by the CMS in July 1999 for nursing home regulation
- 48 individual medications or classes to avoid in the elderly
- 19 diseases or conditions and medications to be avoided in older adults with these conditions

Practical Application of Beers’ Criteria

- Focus on “high(est) risk” of Severity Rating
  - Meperidine
  - BZDs
  - Tertiary amine TCAs (amitriptyline, imipramine)
  - Metoclopramide, chlorpromazine
  - Anticholinergics/antihistamines
  - Narrow Therapeutic Index meds
    - Phenytoin, warfarin, digoxin, lithium, theophylline
- Not “contraindicated”
  - “Potentially inappropriate” is a better term
    - Use could be justified by special circumstances

Other Reasons to Stop Medications

- Over-treated/stable diseases
  - Diastolic HF (or treated like systolic HF)
  - Oral DM meds (insulin started/stable, pts in LTC)
  - “Forgotten” steroids in stable dz (COPD, RA)
  - 1° prevention in very old
  - Palliative/hospice care
- Ineffective meds
- Duplicate therapy
  - “Double dosing” with generic & brand
  - >1 med in same class
**Signs & Symptoms: Normal or Not?**

- Many ADE’s are also sx’s associated w/ aging
  - Weakness
  - Dizziness
  - Falls
  - Sedation
  - Confusion/Memory loss
  - Anorxia
  - Anxiety
  - Depression
  - Insomnia
  - Incontinence

**Team Monitoring for ADEs**

- Monitor for new sx’s that might be an ADE
  - Documented reports of the sx occurring w/ med
  - Sx appeared after med was started
  - Sx improved when med is reduced or D/C’d
  - Sx worsened when med is increased or restarted
  - No evidence for another cause
    - No new illness, no exacerbation of existing condition
    - Suspect super-therapeutic (toxic) blood concentration
    - Pt had similar rxn to med/class in past
    - Consider non-adherence if med “not working”

**Avoid “A pill for every ill”**

- Avoid treating ADE’s with more meds!
  - Examples:
    - Edema from a CCB treated w/ furosemide & KCl
    - Stomach upset from KCl treated w/ antacids
    - Constipation from Ca++ treated w/ laxatives
    - Diarrhea from laxatives treated w/ antidiarrheals
    - Dry mouth from antidiarrheals treated w/ increased fluid intake
    - Edema from increased fluid intake treated w/ more diuretics!
  - Utilize/Maximize non-pharmacotherapy options

**Less is More?**

- Clinical trials
  - Absence of data/literature
  - Evidence supports less-aggressive Tx in geriatrics
    - Optimal Tx/goals not always clear
      - HTN, DM
    - Evidence supports Tx in geriatrics in many dz’s
      - ARB > in younger pts
        - “The fewer-the-better approach to drug therapy in the elderly does not work when drugs with proven efficacy in elderly patients are available.”
        - Practice “thoughtful” polypharmacy
Prescribing Practice Pearls

• Communicate!
  – Prescriber-patient/caregivers
  – Prescriber-patient
  – Prescriber-pharmacist

**Especially important during TOC

• Identify diagnosis & goals of therapy
  – Aids selection of proper med(s) & treatment period
  – Focus on function

Prescribing Practice Pearls

• Avoid purely symptomatic treatments
  – Especially treating ADEs from other meds
  – Avoid/limit unless a formal dx
    • NSAIDs, diuretics, digoxin, antidepressants, cholinesterase inhibitors

• Use caution with “new” meds
  – Lack long-term safety data

• Avoid > 1 med in same class
• Consider meds that will treat > 1 problem

Prescribing Practice Pearls

• “Start low, go slow”
  – But keep going
    • ACEIs
    • Antidepressants
  – Or stay low
    • Lithium
    • Anticonvulsants
    • Opioids
    • BZDs
    • Antibiotics?

Use minimal effective dose!

Prescribing Practice Pearls

• Stop/taper meds if not indicated/effective
• Change 1 med at a time
  – Careful monitoring for ADEs, withdrawal, dz improvement or exacerbation

• Give summary of changes in writing
  – Include updated medication list
  – Large, bold font (as needed)
  – Clear instructions
Prescribing Practice Pearls

• Comprehensive medication review
  — Every 6-12 months (+ as needed, w/ TOC)
  — “Brown bag”
    • Include non-pill meds, prn’s, OTC’s, supplements, meds “around the house”
  — “Show & Tell”
  — Ask about med $$
  — Review dosing based on age, hepatic & renal fxn
  — Review for interactions, duplicate therapies, lack of indication
  — Monitor for therapeutic and toxic effects

• Simplify medication regimen/schedule
  — Once-daily medications
  — Synchronize doses
    • Tie to scheduled daily activities (meals, sleep/wake)
    • Pts develop own cues/plan
  — Combination pills
  — Limit “prn” meds

• Evaluate pill size
  — Consider rapid dissolving, liquid, topical routes

Prescribing Practice Pearls

• Medication aids
  — Pill boxes, bubble packs, “salad” packs
  — Medication charts
  — Alarms, signs, other reminders
  — Involve family and care takers

• Pt education = pt empowerment
  — Predictable/common vs. rare/serious ADEs

• Collaborate with pharmacy!
  — Use one pharmacy
  — Refill synchronization

Pharmacists on the Care Team

• Numerous care environments
  — Hospitals
  — Primary care clinics
    → Patient Centered Medical Home
  — Informatics
  — Community/retail
  — Long-term care
  — Specialty
Comprehensive Medication Management

1. Identify patients that have not achieved clinical goals of therapy
2. Understand the patient’s personal medication experience/history and preferences/beliefs
3. Identify actual use patterns of all medications including OTCs, bioactive supplements, and prescribed medications
4. Assess each medication for appropriateness, effectiveness, safety (including drug interactions) and adherence (in that order) focused on achievement of the clinical goals for each therapy
5. Identify all drug therapy problems (the gap between current therapy and that needed to achieve optimal clinical outcomes)

6. Develop a care plan addressing recommended steps including therapeutic changes needed to achieve optimal outcomes
7. Patient agrees with and understands care plan which is communicated to the prescriber for his/her consent/support
8. Document all steps and current clinical status vs. goals of Tx
9. Follow-up with the patient is critical to determine effects of changes, reassess actual outcomes, and recommend further Tx/ic changes to achieve desired clinical goals/outcomes
10. Care is coordinated with other team members and personalized (patient unique) goals of Tx understood

Team-based Care Model

• **Team members**
  - Physician
  - Medical Assistant
  - Pharmacist
  - Case/Care Manager
  - Behavioral Health
  - Diabetes Educator
  - Disease Management Support Team
  - Front desk support staff

• **Components**
  - Patient is at the center
  - Physician is leader
  - All members at top of license/scope
  - Standardized workflows
  - Any team member can refer/ID issues
  - Shared care plans
Inclusion of Pharmacists in PCMH

“Integration of clinical pharmacy services into primary health care improves patient health outcomes, reduces the incidence of adverse events, and reduces costs to the health care system overall”

“Comprehensive medication management has been shown to facilitate the efficiency and effectiveness of the PCMH team in improving patient clinical outcomes, reducing morbidity and mortality, while lowering total healthcare costs.”

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Summary

• “CARE”
  – Caution
  – Adjust the dose
  – Review Regimen Regularly
  – Educate

Questions?