Polypharmacy, Medication Nihilism, and the art of de-prescribing

Temple Family Practice Review Course

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A medical confession

• I have violated my Hippocratic Oath - harmed my patients, given them meds that make them worse, decreased their quality of life, spent thousands of dollars, and occasionally gave treatments that lead to end of life

• The dwindling health patient

• How can we systematically take steps to consider our treatments, and “above all, do no harm”? 
The medication big picture

• Physicians are trained in the art of diagnosis and treatment
• Medications have become the cornerstone of treatment, with often spectacular successes such as antibiotics
• Prescriptions are easy to write, and received with great reverence by our patients
• Disease-centric guidelines often guide our prescribing rather than patient-centered focus
The challenge

• Patients are a single health unit with a variety of diseases – not a conglomeration of conditions with individual treatments
• Patients often end up on a multitude of unique treatments, without adequate consideration of how they affect the overall individual
• The body, its needs and its tolerances change over time
The consequences

• Multiple medications
• High cost
• Drug interactions
• Drug side effects
• Concealed symptoms and conditions
• Patient noncompliance
• Patient discontent – with treatments and provider
• Impaired quality of life and death
A schizoid dichotomy

• Drugs are wonderful/life-saving
• Drugs are awful/dangerous
• We should be on neither or both sides
• Medications should be viewed as tools with both benefit and harm
Lecture objectives

• Propose a structured way to approach the medications of a particular individual, based on realistic outcomes, and with objective and subjective considerations

• This lecture will look critically at the use of medication, especially in older individuals, but I use them regularly and am not “anti-drug”

• Special credit - Dr. Joshua Uy M.D., Clinical Assistant Professor of Medicine, University of Pennsylvania
Case study

84-year-old female, resides at home with 86-year-old spouse, seen for office visit

- Severe dementia (FAST stage 7A), hyperlipidemia, diabetes type II, hypertension, CHF (EF 31%), CAD (MI hx), CKD, DJD
- One person transfer, spends much of day in wheelchair
- AIC 8.9, BP 118/68, Chol 240, LDL 170
- No recent hospitalizations or crises. Content, no behavioral difficulties.
- DNR, “what would you do for your mother, doc?”
Case study meds:

- Metformin 500 BID
- Furosemide 40 daily
- Lisinopril 10 daily
- Atorvastatin 80 mg daily
- Naproxen 250 BID
- Donepezil 10 daily
- Acetaminophen 650 TID
- Alendronate for 6 years
Conceptual questions

• What are the therapeutic targets for her disease states?
• What are her and your priorities?
• What would you change?
• Why?
The art of de-prescribing

• A carte blanche “sweep the table clean” approach rarely works
• One size does NOT fit all
• Components:
  • frailty/function
  • treatment goals
  • comorbidities
  • patient engagement
  • prognosis
Seven Clinical questions

**Patient questions**
- Is the patient frail? What is their prognosis? Does frailty decrease benefits or increase harm?
- What is the co-morbidity context? Prioritization? Treat everything?
- What are the goals of care?

**Medication review questions**
- What is the clinical benefit in the context of older frail adults?
- What is the time frame for benefit?
- What is the efficacy? (NNT) and is it worth it to the patient?
- What are the risks? Are active side effects worth tolerating? (hint: answer is no)
Frailty/prognosis

- Social Security life tables – average cohort life expectancy
  https://www.ssa.gov/OACT/population/longevity.html
- In our case study at 84 years & 8 months – life expectancy is 7.4 years
- Limitations: no consideration of disease
Frailty - a defined medical syndrome, multiple causes, with imminent risk of decline & death

- **Tests:**
  - Get up and go test greater > 12 seconds
  - Gait speed > 5 sec/4 meters
  - Frail tool - above

- **Frailty implications**
  - Outcomes are less certain (statin and BP control may not decrease cardiovascular disease)
  - Treatment is less likely to decrease all cause mortality
  - Frailty predicts life expectancy in the bottom quartile for age

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### FRAIL tool

<table>
<thead>
<tr>
<th>Question</th>
<th>Y</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fatigue – are you fatigued?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resistance – can you walk up 1 flight of stairs?</td>
<td>N</td>
<td>y</td>
</tr>
<tr>
<td>Aerobic – can you walk 1 block?</td>
<td>N</td>
<td>y</td>
</tr>
<tr>
<td>Illness – more than 5 chronic illnesses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loss of weight – &gt;5% weight loss in last 6 months</td>
<td>Y</td>
<td>n</td>
</tr>
</tbody>
</table>

Score (bolded answers) =

(Prefrail - 1 or 2, Frail > 3)
Prognosis

- [http://eprognosis.ucsf.edu/](http://eprognosis.ucsf.edu/)
- Case study - Out of 100 community-dwelling adults > 65 yo with similar answers, in next year:
  - 25 will die
  - 75 will survive
Comorbidity

• Patients with > 1 disease
  • ↑death, ↑disability, ↓QOL, ↑adverse effects
  • ↑ complexity of care
  • ↑ polypharmacy

• Challenging to quantify…but always decreases prognosis
Goals of care

• What is most important to the patient: longevity, QOL, function, pain control, location?

• QOL now vs QOL in the future? What would change your perspective? What specific limitations do you have?

• Tolerance of side effects and adverse events?

• Patient engagement is essential to success
  • Many older patients will welcome this discussion, except for their few favorite meds

• A few individuals will resist this continually (autonomy)

• Avoid the battles – plant the idea, follow-up, discuss repeatedly, set up contingency plans, and try to make it a joint effort.
Medication review principles

- Review medications at every visit
- Every medication must have a logical reason for its use in that particular patient
  - Most medications without rationale should be discontinued
  - Every medication must be efficacious within the timeframe of the patient’s prognosis
- Every medication must be consistent with the patient’s healthcare goals
- Try to stop a pill whenever you start a new one
Clinical benefit

• Hard clinical outcomes
  • Death, hospitalization

• Vascular events (MI/CVA - fatal, nonfatal)
  • Function
    • ADL/iADLs, gait, independence, falls

• Quality of life
  • Pain, comfort, dyspnea, communication
Clinical benefit

• Beware of relative risk values
  • a reduction of risk from 2/1000 to 1/1000 = 50% reduction

• Use absolute numbers per 1000 patients
  • NNT/H - number needed to treat or harm
  • Absolute risk reduction
Time Horizon to Benefit

• How long does it take until there is clinical benefit to the patient vs patient prognosis?
## Time Horizon to Benefit

<table>
<thead>
<tr>
<th>Time Frame</th>
<th>Condition/Medication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immediate</td>
<td>Pain, antibiotics, antiplatelets</td>
</tr>
<tr>
<td>&lt; 1 yr</td>
<td>Atrial fibrillation, CHF</td>
</tr>
<tr>
<td>&gt; 1 yr</td>
<td>BP meds, statins</td>
</tr>
<tr>
<td>1-4 yrs</td>
<td>Osteoporosis</td>
</tr>
<tr>
<td>&gt; 4 yrs</td>
<td>Niacin</td>
</tr>
<tr>
<td>&gt; 9 yrs</td>
<td>Diabetes</td>
</tr>
</tbody>
</table>
Risk of treatment

• Side effects – nausea, pain, weakness, fatigue, constipation
• Adverse events: AKI, CHF, electrolyte abnormalities, falls, ED/hospitalization, death
• Low yield treatments – high NNT, low absolute risk
• Specific populations - use of beta blockers after AMI in nursing home residents
  • Beneficial for those with preserved mental/functional ability
  • Functional decline for those with moderate/severe cognitive impairment or severe cognitive impairment

Hypertension

• Clinical benefit - death, CHF, stroke (Not MI per HYVET/SPRINT)
• Efficacy
  • NNT 30 to prevent 1 out of 3 “events”
• Time frame - 2 years
• Treating 1000 patients would prevent 33 CV events over 2 years
  • Risks - Orthostasis, falls, hypotension, AKI
• Relevance to goals of care - preventative/future
BP/cardiac medications

• ACP/AAFP study recommendations for patients ≥ 60 yo:
  • Tx to BP < 150, recognizing potential benefits and harm - (strong recommendation, high quality evidence)
  • If history of stroke/TIA, consider tx to < 140 (weak recommendation, moderate quality evidence)
  • If high cardiovascular risk, consider tx to <140 (weak recommendation, low quality evidence)

• Recommendations:
  • Individualize tx consistent with patient’s goals
  • Monitor/ask about hypotension and syncope
  • Monitor for ADR: fatigue, edema, bradycardia, nausea, urinary incontinence, cough, HA, etc.
  • Decrease/discontinue meds whenever possible

Hyperlipidemia

• Clinical benefit - decreased non fatal MI. Not stroke, or mortality (PROSPER)
• Efficacy
  • NNT 48 to prevent 1 out of 6 MI
  • Time frame - 3.2 years.
  • Treating 1,000 patients over 3.2 years would prevent 21 MI’s
• Risks – Low risk - muscle aches, weakness, abnormal LFT’s
• Relevance to goals of care - preventative/Future
Diabetes type 2

• Clinical benefit of tight control (A1C 7 vs 8)
  • Microvascular benefit only - loss of patellar or ankle reflex, 1 new retinal micro aneurysm, new microalbuminuria
  • No macrovascular benefit (UKPDS, VADT, ACCORD)
  • Benefits may disappear in frail elderly altogether

• Efficacy
  • NNT 35 to prevent 1 out of 4 events (mostly retinopathy)
  • Time frame 10 years (!!!)

• Risks - death, hospitalization, falls, dementia, institutionalization

• Relevance to goals of care - very distant future
Systolic CHF

- Clinical benefit - prevent death, hospitalization, \textbf{Exercise tolerance}
- Efficacy
  - BB: NNT \textbf{15} to prevent 1/3 events, Time frame - \textbf{7 months}
- ACE: NNT \textbf{10} over \textbf{3-6 months}
  - Risks - Hypotension, bradycardia, fatigue
- Relevance to goals of care - both preventative and palliative
Dementia meds

• Clinical benefit – statistical benefit (< 1 MMSE), but not global function. Behavior. Rare benefit with severe dementia

• Efficacy
  • NNT 10 (for cognitive testing statistical score improvement), NNT 42 (marked improvement). NNH 12.
  • Time frame – 3-6 months

• Risks – GI, bradycardia

• Relevance to goals of care - palliative (not preventative)
## Summary

<table>
<thead>
<tr>
<th></th>
<th>Systolic CHF</th>
<th>Dementia</th>
<th>Hypertension</th>
<th>Hyperlipidemia</th>
<th>Diabetes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Clinical benefits</strong></td>
<td>Mortality, Hosp, exercise</td>
<td>↑Cognitive test score. Maybe behavior</td>
<td>Mortality, CHF CVA</td>
<td>MI</td>
<td>? None, microalb, eye, reflexes</td>
</tr>
<tr>
<td><strong>Efficacy</strong></td>
<td>NNT 10-15</td>
<td>NNT 10-42</td>
<td>NNT 30</td>
<td>NNT 48</td>
<td>NNT 35</td>
</tr>
<tr>
<td><strong>Timeframe</strong></td>
<td>Months</td>
<td>Months</td>
<td>2 yr</td>
<td>3 yr</td>
<td>10 yr</td>
</tr>
<tr>
<td><strong>Risks</strong></td>
<td>Low/mod</td>
<td>Low</td>
<td>Low/Mod</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td><strong>Goals of care</strong></td>
<td>Prev/palliativ</td>
<td>Palliative</td>
<td>Preventative</td>
<td>Preventative</td>
<td>Preventative</td>
</tr>
</tbody>
</table>
Case Study:

- Metformin 500 BID – probably continue
- Furosemide 40 daily – consider decrease
- Lisinopril 10 daily - decrease
- Atorvastatin 80 mg daily – discuss goals, maybe d/c, at least decrease
- Naproxen 250 BID - stop
- Donepezil 10 daily - stop
- Acetaminophen - continue
- Alendronate - stop
De-prescribing

- Still an art, but can be well-informed by evidence-based medicine
- Questions
  - Frailty
  - Co-morbidity
  - Goals of care
  - Clinical benefit in the context
  - Time frame
  - Efficacy
  - Risks
- You may not get your clinical practice board scores “right”
- You will ↑QOL, ↑patient happiness, decrease risks, and save money for your patients