Prescribing appropriately

May 2016
Prescribing process
Doctors tend to rely on a ‘head-held’ medication formulary – “a unique.... idiosyncratic individual index to decide whether and what to prescribe”

(Carthy P et al. Family Practice 2000, 17: 36)
Problem

‘Evoked set’

Unreasoned rules

Active problem solving
Reasoned rules

Choice of therapy

Prescribe

- Detailing
- Information. Education
- Guidelines, management targets, etc.

Values & expectancies

- Knowledge about treatments
- Clinical experience
- Environmental factors
- Opinions

Choice of therapy
Cognitive dissonance

• We seek consistency in our beliefs and attitudes in any situation where two cognitions are inconsistent.
• As the experience of dissonance is unpleasant, we are motivated to reduce or eliminate it, and achieve consonance (i.e. agreement).

“Doubt is an unpleasant condition – but certainty is absurd”
Prescriber uncertainty:

- Multiple co-morbidities
- ‘Single disease’ guidelines
- Multiple hosp. & outpat. interventions
- ‘Mixed messages’ (drug choice, dose and duration).
- Managerial incentives (‘targets’ etc)
- DTC advertising
Therapeutic Guidelines
(Rawlins M. Clin Med 2008; 8: 579)

• “RCT evidential hierarchy is flawed
  • over-simplistic
  • pseudo-quantitative
  • weak generalisability
  • limited harm identification”

‘Clinical judgment’ v ‘Evidence’ -
better both than one or the other?
“Prescribing is a complex personal psycho-social behaviour, in which habit interacts with experience and knowledge”.
“Inappropriate” prescribing?

- “the selected drug is not clinically effective, or the benefit is outweighed by the risk, or the dose, route, or frequency of dosing are inappropriate”.

‘STOPP’ & ‘START’ criteria
Mahoney D et al. Europ Ger Med
2010,1: 45-51
Mrs T - aged 83, living alone

- Renal impairment
- IHD
- Heart Failure
- AF
- Systolic hypertension
- Type 2 DM
- Glaucoma
- OA
- Gout
- Falls risk

Therapeutic priorities
- Life expectancy
- Prevention targets
- Treatment expectations
- Treatment risks
Mrs T

Frusemide 20 mg mane
Candesartan 16mg mane
Metoprolol CR 95 mg nocte
Doxazosin 8 mg mane
GTN spray PRN.
Diltiazem CR 120 mg mane.
Codalgin prn
Aspirin 100 mg mane
Simvastatin 40 mg nocte (TChol 5.2)
Allopurinol 300 mg daily (U Ac 4.3)
Zopiclone 7.5 mg nocte
Xalatan (Latanoprost) eye drops
Cosopt (Dorsolamide + Timolol).

What are the high risk conditions?
- Falls risk
- Glaucoma
- Atrial fibrillation
- Renal impairment
- CHF

What are the high risk meds?
- Doxazosin
- Diltiazem
- Simvastatin
- Candesartan
- Zopiclone

Appropriate?
The Prescribing Cascade

**Medicine 1**
*Doxazosin*
Adverse drug reaction from medicine 1, misdiagnosed as a new medical condition *e.g. postural hypotension*, diagnosed as *dizziness*.

**Medicine 2**
*Prochlorperazine* prescribed to 'treat' adverse drug reaction from medicine 1

Potential for additional adverse drug reactions associated with medicine 2 *e.g. exacerbation of postural hypotension, leading to a fall and subsequent hip fracture.*
Statins – are they being prescribed appropriately?

- Pfizer funded **maximum dose** Lipitor campaign
  - TNT study (2005) – 80mg vs 10mg the gain: The risk of CV events was reduced, cf 10mg dose – but the overall risk of death was increased.
  - Stroke study 2006 - stroke reduction of 1.9% for 80mg vs 10mg but haemorrhagic stroke incidence increased by 67%. All authors employed by Pfizer.
  - Abnormal LFTs increased six fold *(NEJM 2005, 352:1425)*
  - Both studies funded by Pfizer.

**High dose** statins should only be used for high risk established IHD.
Prescribing conservatively

Schiff et al: JAMA 2009, 301: 865
Principles of conservative prescribing

1. Think beyond drugs:
   - Supportive strategies, such as CBT, diet, exercise etc.
   - Know when to say **NO**

2. Practice strategic prescribing:
   - Identify prophylactic targets
   - Prioritise therapeutic objectives
   - Consider life expectancy
   - Cover patient’s expectations.
Principles of conservative prescribing

3. Heightened ADR vigilance:
   - Inform patients of common ADRs
   - Timely response to ADR concerns
   - Awareness of drug withdrawal syndromes

4. Caution and skepticism of new drugs:
   - Learn from unbiased sources
   - Is there demonstrable clinical benefit, or is the therapeutic target only a surrogate marker?
   - Be aware of starting dose recs.
   - Avoid ‘off-label’ use
   - RCTs are poor indicators of drug safety
   - Be aware of reporting bias
5. **Shared decision-making:**

- Identify patient’s expectations **early** in the consultation.
- Conduct a regular medicines review with the patient: effectiveness, tolerability, drugs that can be stopped.
- Identify non-adherence, often due to an unreported ADR
- Avoid prescribing additional drugs for refractory problems, e.g. chronic pain.

Have the courage to review specialist recommendations.
‘Deprescribing’!

Think ‘appropriateness’
Withdrawal syndromes

1) TCADs / SSRIs

- Likely after only 6 weeks of treatment
- Shorter half life drugs.
- Onset within days of stopping
- Insomnia, flu-like symptoms, nausea, imbalance, hyper-arousal and sensory disturbance.
- Gradual tapering over at least a month
- Discontinuation syndromes occur in approx 20% of patients on ‘stable’ chronic treatment.
Withdrawal syndromes

2) Benzodiazepines

- Onset within days.
- More common with shorter half life BDZs.
- Increased risk of convulsions in elderly.
- Adrenergic symptoms, insomnia, weight loss, anxiety, agitation, cognitive impairment.
- Gradual tapering may require switch to Diazepam.
- Psychological dependence is very strong and develops early in treatment.
Withdrawal syndromes

3) Beta blockers

- Hyper-adrenergic symptoms and signs within 1-2 days, maximal in 4-8 days.
- Duration 10-14 days.
- Risk increased with pre-existing IHD.
- Most risky with symptomatic IHD in ambulatory patients and in those with Felodipine / Nifedipine co-treatment.
- Withdraw gradually over 2-3 weeks but avoid high risk scenarios.
Other withdrawal syndromes (controversial)

- Calcium channel blockers
  - Rebound angina

- Statins
  - Ischaemic stroke

- Proton pump inhibitors
  - Rebound hyperacidity
<table>
<thead>
<tr>
<th>Disease</th>
<th>Information on older patients?</th>
<th>Information on multiple comorbidities?</th>
<th>Information for older patients with multiple comorbidities?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diabetes mellitus</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Hypertension</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Osteoarthritis</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Osteoporosis</td>
<td>No</td>
<td>No</td>
<td>No</td>
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<tr>
<td>Chronic obstructive pulmonary disease</td>
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<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Atrial fibrillation</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Chronic heart failure</td>
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<td>Yes</td>
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<tr>
<td>Angina</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Hypercholesterolemia</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

COPD=Chronic obstructive pulmonary disease

Medicines risk assessment

• History of ADR/allergy
• Drug treatment intolerance (side effects profile)
• Non-adherence factors
• Pt’s understanding of treatment
• Drug + drug interaction
• Drug + disease interaction
• High risk drugs
• High risk life-style factors

- - - all in clinical context / therapeutic priorities
Medications (13)

Frusemide 20 mg mane
Candesartan 16mg mane
Metoprolol CR 95 mg nocte
Doxazocin 8 mg mane
GTN spray PRN.
Diltiazem CR 120 mg mane.
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Therapeutic Guidelines

- RCT evidential hierarchy is flawed
  - over-simplistic, pseudo-quantitative
  - weak generalisability
  - limited harm identification
- Elderly are generally excluded
- Life expectancy and preventive targets change!
- Multiple medications
- Multiple co-morbidities
- Specialty dominated writing panels - opinion bias
- Inappropriately used as ‘quality care standards’
- Industry funding means industry bias

Judgment v Compliance - better both than one or the other?
“Polypharmacy is inevitable”

The question is whether or not the prescribing is appropriate?
Prescribing competently & conservatively

TI Discussion Forum 6th & 13th Dec
Prescribing Competencies

National Prescribing Centre
(2012, NICE, UK)
Prescribing Competencies – the Consultation

• **Identify therapeutic objectives and prioritise.**
  – Therapeutic endpoints
  – Prophylactic targets
  – Life expectancy

• **Appropriate drug choice**
  – Pharmacological principles

• **Patient expectations**
  – Risks
  – Shared decision-making

• **Medication management plan**
  – Treatment duration
  – Monitoring & follow-up
Prescribing effectively and safely

- Drug choice - PML
- Drug-drug & Drug-disease interactions (special session)
- Information resources
- Guidelines - limitations
- ADR awareness and reporting (CARM/MEDSAFE)
- Self improvement – reflection, documentation.
- BPAC
Prescribing in context (Rx milieu)

• Generic prescribing

• Current prescribing trends; e.g. tramadol, oxycodone, spironolactone, statins, etc.)

• Inappropriate prescribing – common errors.

• PHARMAC funding decisions – implications

• Communication – pharmacies, H specialists
# High risk meds!

<table>
<thead>
<tr>
<th>Individually dangerous drugs</th>
<th>Most commonly involved in drug interactions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Warfarin</td>
<td>Lithium</td>
</tr>
<tr>
<td>Itraconazole</td>
<td>Perhexiline</td>
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<tr>
<td>LMW Heparin</td>
<td>Gentamicin</td>
</tr>
<tr>
<td>Methotrexate</td>
<td>Morphine</td>
</tr>
<tr>
<td>Insulin</td>
<td>NSAIDs</td>
</tr>
</tbody>
</table>
“If surgeons knew as little about their operations as physicians know about their medicines the surgeons would not be allowed to operate”

Prof Sir Colin T Dollery (1974)
Inappropriate prescribing

Eg: (discussion)
- Diltiazem + high dose Simvastatin
- ACE-Is as monotherapy (when a thiazide diuretic should be added)
- Alpha blockers + Metoprolol
- Amiodarone without a monitoring strategy
- BDZs in sleep apnoea
- Verapamil or Diltiazem in heart failure
- Opiates in renal failure
- Hypoglycaemic agents in alcoholics or elderly malnutrition
- Dipyridamole as monotherapy
Polypharmacy risk

- Risk of adverse drug event:
  - 2 meds: 13%
  - 5: 58%
  - 7 or more: 82%

  + Reduced adherence to medication regime
  + Drug interactions
  + Increased treatment costs – OP & hospital