Prescribing in the Elderly

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24th September 2014
Objectives

• Understand the significance of polypharmacy in the elderly
• Become familiar with the STOPP START toolkit
• Learn how to carry out a medication review
• Put skills into practice using case studies
Medication review: What do you already know?

• In pairs, discuss how you would go about the process of reviewing a patient’s medication....
Prescribing in the elderly

• 45% prescriptions are dispensed to over 65 age group
• Higher prevalence of chronic health conditions & multiple health conditions
• Physiological changes that occur in the elderly can be interpreted as Physical illness
• Pharmacokinetics and Pharmacodynamics altered by the ageing process
Pharmacokinetics

- Reduction renal clearance → Accumulation of the drug
- Caution when prescribing nephrotoxic agents
- Renally excreted drugs with narrow therapeutic index (e.g. Digoxin)
- Loss of 1st pass metabolism
- Generally leaner body mass;
Pharmacodynamics

• Hypnotics
• Diuretics
• NSAIDs
• Other drugs;
  – Antiparkinsonian drugs,
  – Antihypertensives,
  – Psychotropics,
  – Digoxin.
Prescribing in the elderly

• The overall result is the elderly are more at risk of
  – Adverse drug reactions (ADRs)
  – Adverse drug events
  – Drug-drug interactions
Box 1 Frailty syndromes – a 30 second guide

Older people tend to present to clinicians with non-specific presentations or frailty syndromes, in contrast to the classical presentation seen in younger people. The reasons behind the non-specific presentations include the presence of multiple comorbidities, disability and communication barriers. The ability to recognise and interpret non-specific syndromes is key, as they are markers of poor outcomes.

**Falls**
- Distinguish between syncopal (e.g. cardiac, polypharmacy), or non-syncopal (strength, balance, vision, proprioception, vestibular and environmental hazards all to be assessed).

**Immobility**
- ‘Off legs’ can hide many diagnoses ranging from cord compression to end-stage dementia. A comprehensive assessment is needed to focus on the urgent and important issues to be addressed.

**Delirium and dementia**
- These are closely interrelated but each requires clinically distinct management – collateral history is key detect a recent change in cognition; it is common for delirium to be superimposed on pre-existing dementia. Delirium can be hyperactive, hypoactive or mixed.

**Polypharmacy**
- Adverse drug events lead to increased hospital stay, morbidity and mortality. Consider a medication review focussing on identifying inappropriate prescribing, as well as drug omissions (e.g. STOPP/START). Consider also medicines reconciliation.

**Incontinence**
- An unusual acute presentation, but a marker of frailty and a risk factor for adverse outcomes. More common is abuse of urine dipstick testing leading to erroneous diagnosis of infection, inappropriate antibiotics and increased risk of complications such as clostridial diarrhoea.

**End of life care**
- Mortality rates for frail older people in the year following discharge from hospital, which presents an ideal opportunity to consider advance care planning.
PRESCRIBING CASCADE

Drug 1

Adverse drug effect – misinterpreted as new medical condition

Drug 2

Adverse drug effect
MEDICATION REVIEW

N  Need and Indication
O  Open Questions
T  Tests and Monitoring
E  Evidence and Guidelines
A  Adverse Events
R  Risk reduction or prevention
S  Simplification and switches
BNF – Prescribing in the Elderly

• Guidelines
• Limit range
• Reduce dose
• Review regularly
• Simplify regimens
• Explain clearly
• Repeats and disposal
STOPP/START Toolkit

• Screening Tool of Older Person's Prescriptions (STOPP)

• Screening Tool to Alert doctors to Right Treatment (START)
STOPP/START Toolkit

- **STOPP** = “65 clinically significant criteria for potentially inappropriate prescribing in older people.”
  - Each criterion is accompanied by a concise explanation as to why the prescribing practice is potentially inappropriate.

- **START** = 22 evidence-based prescribing indicators for commonly encountered diseases in older people.
STO~P/P START Toolkit

STO~P: Screening Tool of Older People’s potentially inappropriate Prescriptions.1
The following STO~P prescriptions are potentially inappropriate in persons aged ≥65 years of age

Gastrointestinal System
BNF Chapter 1

diphenoxylate, loperamide or codeine phosphate
- for treatment of diarrhoea of unknown cause* (risk of delayed diagnosis, may exacerbate constipation with overflow diarrhoea, may precipitate toxic megacolon in inflammatory bowel disease, may delay recovery in unrecognised gastroenteritis).
- for treatment of severe infective gastroenteritis i.e. bloody diarrhoea, high fever or severe systemic toxicity (risk of exacerbation or protraction of infection).
- Prochlorperazine or metoclopramide with Parkinsonism (risk of exacerbating Parkinsonism).
- Proton pump inhibitor at treatment dose for peptic ulcer disease at full therapeutic dosage for > 8 weeks (earlier discontinuation or dose reduction for maintenance/prophylactic treatment of peptic ulcer disease, oesophagitis or GORD indicated).
- Anticholinergic antispasmodic drugs with chronic constipation (risk of exacerbation of constipation).

Review enteral nutrition: NICE CG32 (Nutrition support in adults) recommends assessment using a tool such as MUST: www.bapen.org.uk/pdfs/must/must_full.pdf

Endocrine System BNF Chapter 6

START
- Metformin with type 2 diabetes +/- metabolic syndrome (in the absence of renal impairment—estimated GFR <50ml/min).
- ACE inhibitor or Angiotensin Receptor Blocker in diabetes with nephropathy i.e. overt proteinuria or microalbuminuria (>30mg/24 hours) +/- serum biochemical renal impairment—estimated GFR <50ml/min.
- Antipla~tlet therapy in diabetes mellitus if one or more co-existing major cardiovascular risk factor present (hypertension, hypercholesterolaemia, smoking history).*
- Statin therapy in diabetes mellitus if one or more co-existing major cardiovascular risk factor present.*

*In 2009 The MHRA issued advice that aspirin is not licensed for primary prevention and recent studies supported its use only in secondary prevention. However, they did state that the benefits and risks have to be considered for individual patients particularly the benefits with vascular disease including diabetes (but also the risks of gastrointestinal harms).13
NICE CG 67 Lipid Modification Prescribing Guidelines re primary prevention say that diabetics should be considered at high risk.
NICE CG 66 Type 2 Diabetes says that patients over 40 years should be offered a statin irrespective of CVD status (based on the cost effectiveness of simvastatin).
Case Studies - 1

• The following table show the medication prescribed for a 75 year old woman with multiple co-morbidities. Four specialists were involved in the care of the lady. She had IHD, paroxysmal AF, and a number of her cardiac medications were initiated following acute hospital admissions. She also had frequent infective exacerbations of COPD and suffered from various GI problems, Parkinson’s Disease and Anxiety
## Case Studies - 1

<table>
<thead>
<tr>
<th>INDICATION</th>
<th>MEDICATION</th>
<th>FORMULATION, DOSE, FREQUENCY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coronary heart disease with paroxysmal atrial fibrillation and MI</td>
<td>Aspirin</td>
<td>75mg dispersible once daily</td>
</tr>
<tr>
<td></td>
<td>Simvastatin</td>
<td>40mg one at night</td>
</tr>
<tr>
<td></td>
<td>Verapamil hydrochloride</td>
<td>240mg MR one in the morning</td>
</tr>
<tr>
<td></td>
<td>Digoxin</td>
<td>125mcg tablets one at night</td>
</tr>
<tr>
<td></td>
<td>GTN</td>
<td>Sublingual spray 1-2 PRN</td>
</tr>
<tr>
<td></td>
<td>Furosemide</td>
<td>40mg one in the morning</td>
</tr>
<tr>
<td>COPD with bronchiectasis</td>
<td>Seretide</td>
<td>250/actuation 2 puffs twice daily</td>
</tr>
<tr>
<td></td>
<td>Ventolin</td>
<td>100/actuation 2 puffs four times a day</td>
</tr>
<tr>
<td>Dyspepsia, previous history of peptic ulcer, biliary reflux, previous</td>
<td>Peptac</td>
<td>Liquid 5-10ml PRN</td>
</tr>
<tr>
<td>history of portal vein thrombosis and portal hypertension with</td>
<td>Omeprazole</td>
<td>20mg enteric coated twice daily</td>
</tr>
<tr>
<td>oesophageal varices and irritable bowel syndrome, constipation</td>
<td>Domperidone</td>
<td>20mg tablets three times a day</td>
</tr>
<tr>
<td></td>
<td>Mebeverine hydrochloride</td>
<td>265mg three times a day</td>
</tr>
<tr>
<td></td>
<td>Docusate sodium</td>
<td>200mg twice a day</td>
</tr>
<tr>
<td></td>
<td>Senna</td>
<td>7.5mg PRN for constipation</td>
</tr>
<tr>
<td></td>
<td>Glycerol</td>
<td>700mg suppositories PR</td>
</tr>
<tr>
<td>Parkinson’s disease</td>
<td>Ropinirole hydrochloride</td>
<td>8mg M/R tablets three in morning</td>
</tr>
<tr>
<td></td>
<td>Amatadine hydrochloride</td>
<td>100mg once a day day</td>
</tr>
<tr>
<td></td>
<td>Co-careldopa</td>
<td>25/100 1.4 breakfast/lunch/supper</td>
</tr>
<tr>
<td></td>
<td>Co-careldopa</td>
<td>50/200 MR at night</td>
</tr>
<tr>
<td></td>
<td>Co-benyldopa</td>
<td>125/50 dispersible in the morning</td>
</tr>
<tr>
<td>Anxiety</td>
<td>Amitriptyline hydrochloride</td>
<td>25mg one in the morning and two at night</td>
</tr>
</tbody>
</table>
Case Studies - 1

• Perform a medication review
• Discuss how you could approach rationalising medication
• Are there any medications you would stop or start?
• Who else would you need to involve in this process?
This case is of a 60 year old woman, managed by her GP who had breast cancer diagnosed 5 years ago which was initially treated with Herceptin. She developed metastatic disease, with pain in the thoracic spine and right hypochondrium, and experienced a fit probably due to brain metastases. She had been taking tramadol for a few weeks for pain and was started on a fentanyl transdermal patch a few days ago. She had become increasingly tired and nauseated and was unable to attend the GP surgery requiring home visits. She had been on a long-term statin for hypercholesterolaemia, took an SSRI antidepressant and complained of dyspepsia. She also had heart failure attributed to previous herceptin therapy and remained short of breath.
# Case Studies - 2

<table>
<thead>
<tr>
<th>INDICATION</th>
<th>MEDICATION</th>
<th>FORMULATION, DOSE, FREQUENCY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain</td>
<td>Paracetamol</td>
<td>500mg, four times a day</td>
</tr>
<tr>
<td></td>
<td>Naproxen</td>
<td>250mg, three times a day</td>
</tr>
<tr>
<td></td>
<td>Ibuprofen</td>
<td>500mg, three times a day</td>
</tr>
<tr>
<td></td>
<td>Tramadol</td>
<td>50mg 1-2 PRN up to four times a day</td>
</tr>
<tr>
<td>Depression</td>
<td>Fluoxetine</td>
<td>20mg capsules one in the morning</td>
</tr>
<tr>
<td></td>
<td>St John’s Wort</td>
<td>One daily (over the counter)</td>
</tr>
<tr>
<td>Heart failure</td>
<td>Furosemide</td>
<td>40mg tablet one in the morning</td>
</tr>
<tr>
<td></td>
<td>Ramipril</td>
<td>5mg tablets twice a day</td>
</tr>
<tr>
<td>Primary cardiovascular risk prophylaxis</td>
<td>Simvastain</td>
<td>40mg one at night</td>
</tr>
<tr>
<td></td>
<td>Aspirin</td>
<td>75mg once a day</td>
</tr>
<tr>
<td>Dyspepsia</td>
<td>Gaviscon advance</td>
<td>5-10ml PRN for indigestion</td>
</tr>
<tr>
<td></td>
<td>Co-magaldrox</td>
<td>195/220 suspension 10-20mls after meals</td>
</tr>
<tr>
<td>Breast cancer</td>
<td>Tamoxifen</td>
<td>20mg tablets once a day</td>
</tr>
</tbody>
</table>
Case Studies - 2

• Perform a medication review
• Discuss how you could approach rationalising medication
• Are there any medications you would stop or start?
• Who else would you need to involve in this process?
Case Studies - 3

- This concerns a 90 year old woman who had a previous history of myocardial infarction, severe aortic stenosis and heart failure. She also suffered from asthma, osteoporosis and hypothyroidism. She underwent aortic valve replacement and was discharged to a care home on the following medicines, where her care was primarily managed by her GP.
## Case Studies - 3

<table>
<thead>
<tr>
<th>INDICATIONS</th>
<th>MEDICATION</th>
<th>FORMULATION, DOSE AND FREQUENCY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coronary heart disease, heart failure</td>
<td>Isosorbide mononitrate</td>
<td>60mg MR once a day</td>
</tr>
<tr>
<td></td>
<td>Digoxin</td>
<td>62.5mcg once a day</td>
</tr>
<tr>
<td></td>
<td>Bumetanide</td>
<td>1mg four in the morning</td>
</tr>
<tr>
<td></td>
<td>Simvastatin</td>
<td>40mg one at night</td>
</tr>
<tr>
<td></td>
<td>Clopidogrel</td>
<td>75mg once a day</td>
</tr>
<tr>
<td></td>
<td>Captopril</td>
<td>25mg twice daily</td>
</tr>
<tr>
<td></td>
<td>Bendroflumethiazide</td>
<td>2.5mg once in the morning</td>
</tr>
<tr>
<td></td>
<td>Amiodarone</td>
<td>200mg once daily</td>
</tr>
<tr>
<td></td>
<td>GTN</td>
<td>S/L 1-2 puffs for angina</td>
</tr>
<tr>
<td>Asthma</td>
<td>Salbutamol</td>
<td>100micrograms/puff</td>
</tr>
<tr>
<td>Osteoporosis</td>
<td>Calcichew D3 forte</td>
<td>1.25g tablets twice daily</td>
</tr>
<tr>
<td>Prophylaxis against GI bleed</td>
<td>Lansoprazole</td>
<td>30mg once daily</td>
</tr>
<tr>
<td>Hypothyroidism</td>
<td>Levothryoxine</td>
<td>50microgram tablets once a day</td>
</tr>
</tbody>
</table>
Case Studies - 3

• Perform a medication review
• Discuss how you could approach rationalising medication
• Are there any medications you would stop or start?
• Who else would you need to involve in this process?
You see an 80 year old patient who is rarely at the practice but used to see a now retired partner. She is usually well but has been falling more recently. She is worried about breaking a hip. Her medications include amitriptyline, diazepam, temazepam, bendroflumethiazide, atenolol, aspirin and simvastatin.
ANSWERS

A  Stop aspirin
B  Stop simvastatin
C  Reduce to four or fewer medications
D  Stop amytriptyline
E  Stop bendroflumethiazide
Objectives

• Understand the significance of polypharmacy in the elderly
• Become familiar with the STOPP START toolkit
• Learn how to carry out a medication review
• Put skills into practice using case studies
References & Suggested Further Reading


• Tessa Lewis. Using the NO TEARS tool for medication review. BMJ 2004 Vol 329, 433-434
References & Suggested Further Reading

• “The Silver Book” - [www.bgs.org.uk](http://www.bgs.org.uk)
• STOPP START (NHS Cumbria); 
• American Geriatric Society updated Beers Criteria; 
• BNF (via GMC) – Prescribing in the elderly; 
  [https://www.medicinescomplete.com/mc/bnf/current/PHP139-prescribing-for-the-elderly.htm](https://www.medicinescomplete.com/mc/bnf/current/PHP139-prescribing-for-the-elderly.htm)