UNIVERSITEIT GENT

FACULTEIT FARMACEUTISCHE WETENSCHAPPEN

Detecting inappropriate prescribing for older patients at the community pharmacy

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Introduction

- Role community pharmacist:
  - from dispenser → care-giver

- Support prescribers by executing final check for IP upon dispensing medication

→ need for feasible screening tool

Introduction

- Existing tools:
  - Implicit vs explicit
  - Time-consuming / Too extensive
  - Specifically designed for hospital settings
  - Require unavailable clinical information
  - Lack scientific evidence
  - Not offer alternative treatments
  - Validation?

Objective

To develop, validate and implement a screening tool

- to detect inappropriate prescribing
- in older patients (≥65 year)
- at the community pharmacy

Project overview

- Part 1: select those criteria with most clinical relevance to primary care
- Part 2: Re-evaluating retained criteria, second selection based on current applicability in Belgian community pharmacy practice
- Part 3: Validation + testing feasibility and acceptance
- Part 4: Finetuning & interventional research

Part 1

Selecting those criteria with most clinical relevance to primary care

Part 1: Methods

- Multidisciplinary Delphi panel (RAND/UCLA-method) *(February – April 2013)*
  - Literature review
  - Starting from all items mentioned on any IP-list
  - First exclusion (e.g. drugs not on Belgian market)
  - First Delphi round: Written questionnaires
  - Second Delphi round: face-to-face meeting
    - Geriatric specialists, general practitioners, clinical pharmacologists, community pharmacists, clinical pharmacists

Part 1: Results

- **List 1**: Potentially inappropriate medication for older patients, independent of diagnosis
  - Part 1: Drug classes: 11 items
  - Part 2: Specific molecules: 21 items
- **List 2**: Potentially inappropriate medication for older patients, dependent of diagnosis
  - Part 1: Drug classes: 12 items
  - Part 2: Specific molecules: 12 items

Part 1: Results

- **List 3**: Potential prescribing omissions for older patients
  - 7 items
- **List 4**: Drug-Drug interactions of specific relevance in older patients
  - 28 items
- **List 5**: General care-related items for older patients to be addressed in the pharmacy
  - 6 items

Part 1: Example

List 2: Potentially inappropriate medication for older patients, dependent of diagnosis - Part 2: Specific molecules

No.	Item	Present disease	Q1	Median	Q3	Alternative	Q1	Median	Q3
14	Alizapride	Parkinson's disease	8,5	9	9	1st Always apply non-drug and diet therapy 2nd If anti-emetic therapy is necessary, prefer domperidone in low dose only if no cardiac risk factors are present and no other QT-prolonging drugs are used	7	8	8,5
15	Allopurinol	Renal impairment	8	9	9	eGFR <50 mL/min: start with 50 mg/day and increase dose monthly with steps of 50 to 100 mg until reaching a urine acid concentration <0,35mmol/L	8	9	9
16	Amoxicilline with full dose clavulanic acid	Renal impairment	7,5	9	9	eGFR 10-30mL/min: Give amoxicillin in dose corresponding with diagnosis Reduce dose clavulanic acid (from 3 times/day to 2 times/day)	8	8	9
17	Ciprofloxacine	Renal impairment	8	9	9	1st Prefer other antibiotic agent 2nd If therapy is necessary: eGFR <30ml/min: reduce dose interval to 24h, or decrease dose to half of standard dosing	7	8	9
18	Digoxin	Renal impairment	8	9	9	- eGFR 30-50mL/min: max 0,125mg/day - eGFR <30mL/min: max 0,0625 mg/day, based on serum digoxin levels (between 0,5µg/L and 0,8 µg/L)	7	8	9
19	Diltiazem	Congestive heart failure	7	8	8,5	1st Prefer other class of antihypertensive agent 2nd If calcium channel blocker is necessary, prefer dihydropyridines	7	8	9
20	Metformine	Renal impairment	8	9	9	- eGFR 30-50mL/min: start with 2 times 500 mg/day, slowly increasing to standard dosing - eGFR <30mL/min: contra-indicated	6,5	8	8,5
21	Metoclopramide	Parkinson's disease	8,5	9	9	1st Always apply non-drug and diet therapy 2nd If anti-emetic therapy is necessary, prefer domperidone in low dose only if no cardiac risk factors are present and no other QT-prolonging drugs are used	7	8	8,5
22	Nitrofurantoin	Renal impairment	8	9	9	Prefer other antibiotic when eGFR <30 mL/min	8	8	8,75
23	Norfloxacine	Renal impairment	8	9	9	1st Prefer other antibiotic agent 2nd If therapy is necessary: eGFR <30ml/min: reduce dose interval to 24h, or decrease dose to half of standard dosing	7	8	9
24	Sotalol	Renal impairment	8	8	9	- eGFR 30-50mL/min: max 2 times 80 mg/day - eGFR <30mL/min: max 2 times 40 mg/day	7,5	8	9
25	Verapamil	Congestive heart failure	7	8	8,5	1st Prefer other class of antihypertensive agent 2nd If calcium channel blocker is necessary, prefer dihydropyridines	7	8	9

eGFR: estimated glomerular filtration rate

Part 2

Second selection based on current applicability in Belgian community pharmacy practice

Part 2: Methods

- Pharmacists Delphi round *(June - July 2013)*
  - Literature review
  - Starting from explicit list from part 1
  - First Delphi round: written questionnaires
  - Second Delphi round: Face-to-face meeting
    - Community pharmacists

Part 2: Results

- **List 1**: Potentially inappropriate medication for older patients, independent of diagnosis
  - Part 1: Drug classes: 11 items → 11 items
  - Part 2: Specific molecules: 21 items → 20 items
- **List 2**: Potentially inappropriate medication for older patients, dependent of diagnosis
  - Part 1: Drug classes: 12 items → 9 items
  - Part 2: Specific molecules: 12 items → 2 items

Part 2: Results

- **List 3**: Potential prescribing omissions for older patients
  - 7 items → 6 items
- **List 4**: Drug-Drug interactions of specific relevance in older patients
  - 28 items → 29 items
- **List 5**: General care-related items for older patients to be addressed in the pharmacy
  - 6 items → 6 items

Part 2 - example

List 1: Potentially inappropriate medication for older patients, independent of diagnosis - Part 2: Specific molecules

No.	Item	Alternative
12	Alizapride	1st Non pharmacological approach 2nd Dose reduction: 3 x 25 mg/day
13	Bisacodyl	Macrogol/lactulose
14	Clonidine	Consider other safer antihypertensive
15	Codeine for acute cough	Therapeutic abstention or safer alternative (e.g. honey)
16	Dabigatran	Warfarin/Acetylsalicylic acid/Heparin, depending on indication
17	Digoxin >0,125mg/day	Digoxin <0,125mg/day or serum level between 0,5 and 0,8 µg/L
18	Dipyridamol monotherapy (without ASA)	Acetylsalicylic acid in low dose
19	Ginkgo biloba	No evidence. Referral depending on underlying condition.
20	Liquid paraffin	Macrogol/lactulose
21	Methyldopa	Consider other safer antihypertensive
22	Metoclopramide	1st Non pharmacological approach 2nd Dose reduction: 3 X 5mg/day
23	Pentazocine	Consider paracetamol/codeine combination or pure morphinomimetic agent, depending on indication
24	Phenobarbital	Verify that GP checked diagnosis with prescribing neurologist
25	Pseudoephedrine oral	Short-term intranasal therapy (nasal vasoconstrictor <7 days or hypertonic saline solution)
26	Rivaroxaban or Apixaban	Warfarin/Acetylsalicylic acid/Heparin, depending on indication
27	Senna glycosides	Macrogol/lactulose
28	Picosulfate	Macrogol/lactulose
29	Theophylline	Reconsider indication, preferably stop theophylline
30	Ticlopidine, new prescription	Verify indication, prefer safer alternative
31	Tramadol, new prescription	Check if step-up approach was used. Paracetamol/Codeine could be more appropriate

GP: General Practitioner.

17. Digoxine >0,125mg/dag

Rationale

Geen bewezen effect op mortaliteit, veiliger alternatief beschikbaar

Afhandeling

Contacteer de arts en bespreek of het bij deze patiënt te overwegen valt ofwel (1) de therapie met digoxine stop te zetten en te vervangen door een andere therapie of (zie Tabel 17.1) (2) de therapie met digoxine verder te zetten maar te verlagen in dosering.

Aanvullende informatie

Het GGR vermeldt dat het gebruik van digitalis glycosiden bij hartfalen geen bewezen effect heeft op mortaliteit[1]. Een post-hoc analyse, gepubliceerd in de Journal of Gerontology (2007) zag echter dat het gebruik van digoxine wel geassocieerd was met een (matige) reductie in mortaliteit en hospitalisaties in chronisch hartfalen bij geriatrische patiënten. Het effect was hetzelfde voor zowel hoge als lage doses digoxine (≤0.125 mg/dag). Hoge doses digoxine (>0.125mg/dag) gaven wel meer hospitalisaties door digoxine toxiciteit[2]. Het lijkt dus raadzaam bij ouderen altijd de lage dosering te verkiezen (≤0.125 mg/dag).

Het risico op een digitalis overdosis is reëel bij verminderde nierfunctie. Omwille van de fysiologische vermindering van de nierfunctie met de leeftijd, raadt het GGR aan de doses bij ouderen in elk geval te reduceren[1]. Het belangrijkste symptoom van digoxine toxiciteit zijn hartritmestoornissen. Andere symptomen zijn misselijkheid, overgeven, gastro-intestinale klachten, duizeligheid en neurologische klachten als vermoeidheid en verstoord kleurenzicht.

Bovendien is digoxine ook zeer gevoelig voor interacties met bvb amiodaron, verapamil en macrolide antibiotica.

Tabel 17.1: Behandelplan van hartfalen
Standaardbehandeling van hartfalen (therapie ter vervanging van digoxine) - Bij chronisch hartfalen worden de symptomen van water- en zoutretentie opgevangen door diuretica (thiaziden, lisdiuretica). De minimaal effectieve dosis wordt toegediend; hierbij kan regelmatig wegen van de patiënt een goede indicator zijn. Daarnaast worden farmaca gebruikt die de levenskwaliteit en de levensverwachting van de patiënt verbeteren. Het gaat vooral om de combinatie van een ACE-inhibitor en een β-blokker; men tracht de gangbare doses geleidelijk te bereiken, voor zover deze verdragen worden. - Enkel wanneer ACE-inhibitoren niet verdragen worden (vb omwille van hoest) wordt een sartaan geassocieerd met de β-blokker. *Behandeling van hartfalen met digoxine* Suggereer bij oudere patiënten een dosering ≤0.125 mg/dag of therapeutische drug monitoring met een digoxine bloedspiegel tussen de 0,5 en 0,8 µg/L.

Referenties

1. Belgisch Centrum voor Farmacotherapeutische Informatie (BCFI). Gecommentariëerd Geneesmiddelen Repertorium 2013.

2. Ahmed A. Digoxin and reduction in mortality and hospitalization in geriatric heart failure: importance of low doses and low serum concentrations. The journals of gerontology Series A, Biological sciences and medical sciences. 2007;62(3):323-9.

Part 3

Observational trial: Identification & prevalence of IP, validation, testing feasibility & acceptance

Part 3: Methods

- Observational study *(dec 2013 – july 2014, 190 community pharmacies, ± 900 ptn)*

- Objectives
  - Identification of inappropriate prescribing and prevalence in Belgium according to new screening tool
  - Validation
    - Compare with other existing lists (Choice: PRISCUS, START/STOPP, Beers, Laroche)
  - Testing feasibility and acceptance
    - Pharmacists
    - Doctors (GP, specialists)
    - Patients

Part 4

Interventional trial

Part 4: Methods

- Finetuning of the screening tool based on Part 3
- Interventional trial (end 2014)
  - Locally organized
- Objective
  - Screening has impact on prescribing?
  - Improving prescribing has influence on patient outcomes?
    - Health related quality of life
    - Hospitalizations

Part 5

Implementation?

Thank you for the attention

Any questions?