Comparaison de deux modes de préparation des médicaments dans une MRS en Communauté germanophone : impact quantitatif et qualitatif sur la pharmacothérapie

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Introduction

- PHEBE-study (Prescribing in Homes for the Elderly in Belgium) KCE 2006
- Large consumption of drugs in Nursing Home
- High costs (140 €/patient/month, 50 = patient, 90 = INAMI/RIZIV)
- Quality of prescription (ACOVE, Beers, BEDNURS)
  - Overuse (BZD, antidepressants, ...)
  - Underuse (in heart failure, prophylaxis, ...)
  - Duplication of treatment
  - ...

Medication use in rest and nursing homes in Belgium, KCE reports vol.47 C
Introduction

- Failures of distribution systems
  - Distribution errors (transcription, reading, ...)
  - Administration errors (patient, dose, time, crushing, ...)
  - => unit-doses or pill-boxes

- Worsening factors
  - Poly-pathology

- Positive factors
  - Drug formulary
  - Coordinating physician
  - Active role of local pharmacist or hospital pharmacist

Medication use in rest and nursing homes in Belgium, KCE reports vol.47 C
Introduction

- Nursing homes = economical value
- Discounts - concurrence
- Robots => centralization
Introduction

- AR/KB 2009 – Instructions for Pharmacists
  - Pharmaceutical Care
  - Quality!
  - Rationnal and appropriate use of medicines
  - Optimal communication with physicians and nurses
  - Availability of referent pharmacist

- + proximity, urgent delivery, human relationship, ...
Comparaison de deux modes de préparation des médicaments dans une maison de repos et de soins en Communauté germanophone : impact quantitatif et qualitatif sur la pharmacothérapie

Mémoire de fin d'étude présenté par Béatrice Schroeder
En vue de l’obtention du titre de Master en Santé Publique
Finalité gestion des institutions de soins
Context of the study

- Nursing home in the German-speaking Community
- Drug distribution system in transition
- Pill-boxes prepared
  - By the nurse
  - By the community pharmacist
Aim of the study

Observational study to compare these 2 systems

- Quantitatively
  - Number of drugs

- Qualitatively
  - Potentially Inappropriate Medication (Beers criteria)
  - Interactions (Micromedex)

- Economically
  - Daily cost for the patient


146 beds

143 patients

- 67 (nurse)
- 76 (pharmacist)

Stratified sample for interactions analyses

- 20
- 20
## Description of the population

<table>
<thead>
<tr>
<th>Variable</th>
<th>Groupe contrôle (n = 67)</th>
<th>Groupe intervention (n = 76)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sexe</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Homme</td>
<td>15 (22,4)</td>
<td>29 (38,2)</td>
<td>0,04</td>
</tr>
<tr>
<td>Femme</td>
<td>52 (77,6)</td>
<td>47 (61,8)</td>
<td></td>
</tr>
<tr>
<td><strong>Age (M ± SD)</strong></td>
<td>83,1 ± 8,2</td>
<td>81,8 ± 8,4</td>
<td>0,36</td>
</tr>
<tr>
<td>Age (étendue)</td>
<td>(58-98)</td>
<td>(57-99)</td>
<td></td>
</tr>
<tr>
<td><strong>Séjour (médiane)</strong></td>
<td>46,0</td>
<td>31,0</td>
<td>0,12</td>
</tr>
<tr>
<td>Séjour (étendue)</td>
<td>(0-192)</td>
<td>(0-134)</td>
<td></td>
</tr>
<tr>
<td><strong>Catégorie de Katz</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>O (%)</td>
<td>5 (7,8)</td>
<td>12 (15,8)</td>
<td></td>
</tr>
<tr>
<td>A (%)</td>
<td>4 (6,3)</td>
<td>24 (31,6)</td>
<td></td>
</tr>
<tr>
<td>B (%)</td>
<td>13 (20,3)</td>
<td>17 (22,4)</td>
<td>0,001</td>
</tr>
<tr>
<td>C (%)</td>
<td>3 (4,7)</td>
<td>9 (11,8)</td>
<td></td>
</tr>
<tr>
<td>CD (%)</td>
<td>39 (60,9)</td>
<td>14 (18,4)</td>
<td></td>
</tr>
</tbody>
</table>
Number of drugs/patient

The bar chart shows the number of drugs/patient for nurses and pharmacists. The data points are as follows:

- **Nurse**:
  - Other drugs: 2.3 ± 1.8
  - Tablets: 5.6 ± 3.3
  - Total: 8 ± 3.8

- **Pharmacist**:
  - Other drugs: 1.8 ± 1.8
  - Tablets: 6.9 ± 3.3
  - Total: 8.7 ± 3.3

The p-values for the comparisons are:

- **Nurse vs. Pharmacist**:
  - p = 0.23
  - p* = 0.26

- **Within Nurse**:
  - p = 0.02
  - p* = 0.09

p* denotes the p-value adjusted for sex and Katz.
Potentially inappropriate drug/patient

**Beers criteria**

- Nurse: $1.0 \pm 0.9$
- Pharmacist: $1.0 \pm 0.9$

$p = 0.92$
$p^* = 0.95$

$p^*$: p-value adjusted for sex and Katz
Number of interactions/patient (N=20)

<table>
<thead>
<tr>
<th></th>
<th>Nurse</th>
<th>Pharmacist</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major</td>
<td>0.8 ± 1.3</td>
<td>0.9 ± 1.5</td>
</tr>
<tr>
<td>Moderate</td>
<td>1.6 ± 1.9</td>
<td>1.8 ± 1.7</td>
</tr>
<tr>
<td>Minor</td>
<td>0.1 ± 0.3</td>
<td>0.1 ± 0.4</td>
</tr>
</tbody>
</table>

p = 0.69
p* = 0.61

p* : p-value adjusted for sex and Katz
Daily cost for the patient (EUR)

- Nurse: Daily cost 1.58 EUR, Possible savings 0.28 EUR, p = 0.26
- Pharmacist: Daily cost 1.35 EUR, Possible savings 0.25 EUR, p = 0.52
DISCUSSION & CONCLUSION

- No significant difference between both drugs distribution systems according to
  - quantitative,
  - qualitative and
  - Economic point of vue
- But better communication between nursing and pharmacist
- Reduction of distribution and administration errors?
The road is still long …

Prospects of improvement
- Feedback of these results to the team
- Identify barriers to rational and appropriate use of medicines
  - Time ?
  - Formation of pharmacists ?
  - Communication with physicians ?
  - …
Thank you for your attention ...