

Polypharmacy and potentially inappropriate medications in geriatric outpatients

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Objective:

The growing ageing population and increasing prevalence of chronic diseases requires the simultaneous use of drugs, leading to issues of polypharmacy and potential interactions and inappropriate use.

Purpose :

To evaluate the prevalence of polypharmacy and potentially inappropriate medication (PIM) use and the association between these and number of prescribing medications and number of physician office visits in older adults.

Methods:

Using the Healthcare Information System (HIS) in Taipei City Hospital, we enrolled 159 elderly adults (aged >80 years) who had been prescribed 10 or more chronic medications (drugs prescribed for >28 days) and visited three or more different physician offices from 1 April 2016 to 30 June 2016. The EU(7)-PIM list was used to determine the potential inappropriateness of prescribed medications. Data were analysed using multiple regression analysis by the SPSS 22. A value of $p < 0.05$ was considered statistically significant.

Results:

We enrolled 159 patients in our study where the ratio of males: females were 89:70. The mean(SD) age of our patients was 85.8(10.2) years old. The mean rate of prescribing medications is 14.1(2.7) (maximum=28) orders per day, and number of physician office visits is 3.5(0.5) (maximum=6). In the study, PIM use was common(94.5%) in geriatric outpatients and the number of PIM is 2.9(0.5)(maximum=8). The most commonly prescribed PIM was sennoside(13.1%) theophylline (8.0%), piracetam (7.7%), and PPI (>8 weeks) (6.0%). In multiple regression analysis, PIM use was significantly associated with number of prescribing medications($p < 0.001$) and number of physician office visits in older adults($p = 0.028$).

Conclusions:

Of the 159 elderly persons in the study population, 150 (94.5%) received at least one PIM. Maybe we will establish computerised warning system and embed this into the HIS to decrease the medication number and PIM. The mainstay for preventing and managing polypharmacy remains heightened awareness of patients at risk. Pharmacovigilance is required by the patient, physician and pharmacist in thoroughly reviewing and reconciling the patient's medication regimen at every opportunity.

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Table 1 Number of prescribing medications

Number of prescribing medications	Patients n=159	
	n	%
10	25	15.7
11	12	7.5
12	27	17.0
13	17	10.7
14	18	11.3
15	18	11.3
16	17	10.7
17	4	2.5
18	3	1.9
19	3	1.9
20	4	2.5
21	2	1.3
22	3	1.9
23	3	1.9
25	1	0.6
26	1	0.6
28	1	0.6
Total	159	100.0

Table 2 Number of EU(7)-potentially inappropriate medications

Number of EU(7)-PIM	Patients n=159	
	n	%
0	7	4.4
1	26	16.4
2	31	19.5
3	42	26.4
4	27	17.0
5	13	8.2
6	10	6.3
7	2	1.3
8	1	0.6
Total	159	100.0

Table 3 Number of physician office visits

Number of physician office visits	Patients n=159	
	n	%
3	94	59.1
4	51	32.1
5	10	6.3
6	4	2.5
Total	159	100.0

Table 4 Prevalence of EU(7)-potentially inappropriate medications

EU(7)-PIM	Patients n=159	
	n	%
Drugs for peptic ulcer and gastro-oesophageal reflux	156	11.7
Laxatives	174	13.1
Insulins and analogues	63	4.7
Antithrombotic agents	54	4.1
Iron preparations	3	0.2
Cardiovascular system	30	2.3
Antiarrhythmics, classes I and III	15	1.1
Antiadrenergic agents, peripherally acting	61	4.6
Potassium-sparing agent	16	1.2
Peripheral vasodilators	63	4.7
Beta blocking agents	36	2.7
Selective calcium channel blockers with mainly vascular effects	46	3.5
Selective calcium channel blockers with direct cardiac effects	67	5.0
Other urologicals, including antispasmodics	47	3.5
Anti-inflammatory and antirheumatic products, non-steroid (NSAID)	19	1.4
Opioids	22	1.7
Antiepileptics	48	3.6
Dopaminergic agents	17	1.3
Antipsychotics	2	0.2
Anxiolytics	105	7.9
Hypnotics and sedatives	50	3.8
Antidepressants	4	0.3
Psychostimulants, agents used for ADHD and nootropics	102	7.7
Anti-dementia drugs	24	1.8
Other systemic drugs for airway diseases	106	8.0
Cough suppressants, excluding combinations with expectorants	1	0.1
Total	1331	100.0