

1 Table 1. Characteristics of the 13 patients with polypharmacy, including diseases and medicines

Patient ID	Age	Sex	Medication review	Pharmaceutical counseling	Number of medications	Disease	AST		ALT		e-GFR		Medicine	Action	MAI assessment									
							before	after 6 months	before	after 6 months	before	after 6 months			1. Indication	2. Effectiveness	3. Dosage	4. Correct directions	5. Practical directions	6. Drug-drug interactions	7. Drug-disease interaction	8. Duplication	9. Duration	10. Expensiveness
1	80	Male	■	■	16	CKD, HT, Skin cancer, Prostatic cancer	11	14	11	12	4.9	5.4	Potassium citrate, Sodium citrate	stop	■	□	□	□	□	□	□	□	□	□
													Olopatadine hydrochloride	stop	■	□	□	□	□	□	□	□	□	□
													Hachimijiogan	stop	■	□	□	□	□	□	□	□	□	□
2	74	Female	■	■	24	GERD, Asthma, Cervico-omo-brachial pain	26	31	22	29	71.9	77.1	Pranlukast hydrate	stop	□	■	□	□	□	□	□	□	□	□
3	80	Female	■	■	23	Impairment of liver function, DM, HT, Gastric ulcer, NERD	31	47	20	23	70	74	Biotin	stop	■	□	□	□	□	□	□	□	□	□
													Sucralfate hydrate	stop	□	□	□	□	□	□	□	■	□	□
													Polaprezinc	stop	□	□	□	□	□	□	□	■	□	□
													Brotizolam	dose reduction	□	■	□	□	□	□	□	□	□	□
													Betahistine mesilate	dose reduction	□	■	□	□	□	□	□	□	□	□
													Difenidol hydrochloride	stop	□	□	□	□	□	■	□	□	□	□
													Metformin hydrochloride	dose reduction	□	□	■	□	□	□	□	□	□	□
4	79	Female	■	□	15	Gonarthrosis, Intraductal papillary mucinous neoplasm, HT, DM, Gastric ulcer	24	20	17	13	66.7	60.4	Amlodipine besilate	stop	□	□	□	□	□	□	□	■	□	□
													Losartan potassium	stop	□	□	□	□	□	□	□	■	□	□
													Famotidine	stop	□	□	□	□	□	□	□	■	□	□
5	69	Female	■	□	9	Nephrotic syndrome, Sjögren's syndrome, SLE, Osteoporosis, Interstitial Pneumonia	30	28	22	22	52.8	55.6	Polaprezinc	dose reduction	■	□	□	□	□	□	□	□	□	□
6	76	Female	■	□	18	MCTD, PAH, RA	49	65	58	55	43.3	54.9	Sodium ferrous citrate	dose reduction	□	□	□	□	□	■	□	□	□	□
													Folic acid	start	□	□	□	□	□	■	□	□	□	□
													Eldecalcitol	start	□	□	□	□	□	□	□	□	□	□
7	82	Female	■	□	12	DM, HT, DL, CKD, HUA, Goiter, Breast cancer, Colon polyp, Anemia	15	16	8	10	32	28.8	Teprenone	stop	□	□	□	□	□	■	□	□	□	□
													d-Chlorpheniramine maleate	stop	□	□	□	□	□	□	□	□	□	□
8	81	Female	■	■	9	SLE, CKD, Hashimoto's thyroiditis, Bowen's disease, Pulmonary emphysema, HUA	15	16	6	6	14.5	14.2	Sodium ferrous citrate	change the time	□	□	□	□	□	□	□	■	□	□
													Teprenone	stop	□	□	□	□	□	□	□	■	□	□
9	60	Female	■	■	30	SLE, Osteoporosis, Migraine	24	25	14	22	36.6	40.9	Bifidobacterium	stop	□	□	□	□	□	□	□	■	□	□
													Clostridium butyricum	stop	□	□	□	□	□	□	□	■	□	□
													Ambroxol hydrochloride	stop	■	□	□	□	□	□	□	□	□	□
													Zolpidem tartrate	changed the number of times	□	□	□	□	□	□	□	□	□	□
10	45	Female	■	■	17	Systemic sclerosis, Scleroderma, CKD, Anemia, DM, DL	21	17	16	13	73.3	71.7	Brotizolam → Eszopiclone	changed to other medicine	□	□	□	□	□	□	□	□	□	□
													Sennoside A, B Calcium	dose reduction	□	■	□	□	□	□	□	□	□	□
													Sennoside A, B	dose reduction	□	■	□	□	□	□	□	□	□	□
													Lubiprostone	start	□	□	□	□	□	□	□	□	□	□
11	45	Female	■	■	20	Focal glomerular sclerosis, HT, DL, Osteoporosis	10	12	5	6	16.2	12.4	Sodium ferrous citrate	changed the time	□	□	□	□	□	■	□	□	□	□
													Ascorbic acid calcium	dose reduction	□	□	■	□	□	□	□	□	□	□
													Pantothenate	reduction										

														Loxoprofen sodium hydrate	stop	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12	62	Female	<input checked="" type="checkbox"/>	<input type="checkbox"/>	11	ANCA-associated vasculitis, Interstitial pneumonia, CKD, HT, DL, HUA	20	20	18	17	79.6	79.2	Teprenone	stop	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
														Pravastatin → Fluvastatin	changed to other medicine	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13	54	Female	<input checked="" type="checkbox"/>	<input type="checkbox"/>	19		Asthma, DM, DL, Depression, Anemia	58	30	65	33	91.4	106.7	Cimetidine	stop	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Median	74	M/F				17																				
(Min-Max)	(45–82)	1/12				(9–30)																				

AST: aspartate transaminase, ALT: alanine aminotransferase, eGFR: estimated glomerular filtration rate, MAI: medication appropriateness index CKD: chronic kidney disease, HT: hypertension, GERD: gastro-esophageal reflux disease, DM: diabetes mellitus, NERD: non-erosive reflux disease, SLE: systemic lupus erythematosus, MCTD: mixed connective tissue disease

PAH: pulmonary arterial hypertension, RA: rheumatoid arthritis, HUA: hyperuricemia, DL: dyslipidemia

MAI: Medication Appropriateness Index

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|----|--------------------------|---|
| 1 | Indication | Is there an indication for the drug |
| 2 | Effectiveness | Is the medication effective for the condition? |
| 3 | Dosage | Is the dosage correct? |
| 4 | Correct directions | Are the directions correct? |
| 5 | Practical directions | Are the directions practical? |
| 6 | Drug-drug interaction | Are there clinically significant drug-drug interactions? |
| 7 | Drug-disease interaction | Are there clinically significant drug-disease/condition interactions? |
| 8 | Duplication | Is there unnecessary duplication with other drug(s)? |
| 9 | Duration | Is the duration of therapy acceptable? |
| 10 | Expensiveness | Is this drug the least expensive alternative compared to others of equal utility? |

