

# A TWO-STAGE PHARMACEUTICAL INTERVENTION SAFELY REDUCES POLYPHARMACY IN VERY OLD INPATIENTS: A CONTROLLED STUDY.

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## BACKGROUND

In a previous investigation our group developed and validated the RASP list (Rationalization of home medication by an Adjusted STOPP list in older Patients), which is an adaptation of the STOPP criteria (Screening Tool of Older Persons' potentially inappropriate Prescriptions). The screening tool was developed in order to improve the capture rate of PIMs compared to available tools at the time. In this study, we aimed to **prospectively assess the systematic review of drug therapy in an older inpatient population** by deploying a RASP-based intervention.

## PURPOSE

To evaluate the effects of a two-stage pharmaceutical intervention on polypharmacy and safety outcomes in older inpatients.

## METHODS

**Design:** Monocentric, controlled trial.

**Setting:** Acute geriatric wards in a university hospital.

**Participants:** One hundred seventy-two persons admitted to acute geriatric wards. Participants were assigned to a pharmaceutical intervention (n=91) or usual care (n=81) on admission.

**Intervention:** First, the RASP list was applied to drug charts. Second, clinical pharmacists performed a thorough medication review.

**Measurements:** The first co-primary outcome measure was **the composite endpoint of drugs discontinuation and dose reduction of drugs taken on admission**. The second co-primary outcome measure was the ratio of the number of drugs at discharge to the number of drugs on admission. As secondary outcome measures emergency department visits and quality-of-life were registered up to three months after discharge.

## RESULTS

On admission a **median of 2 extra drugs** was discontinued or reduced in dose (P=.001) in the intervention group. This translated in **16% less drugs** at discharge (P=.017), but only after excluding calcium/vitamin D therapy, which had been initiated more in the intervention group (control vs. intervention: 18/81 vs. 56/91; P<.001).

RASP criteria accounted for half of the discontinued drugs. This discontinuation rate persisted during the three month follow-up period. No safety issues were identified. An significant improvement of the quality of life was noted.

Table 1: Baseline patient characteristics

	Intervention (n=91)	Control (n=81)	P-value
Age (years)	84.5 (71-96)	854.6 (73-94)	NS
Male (%)	51.6	43.2	NS
Weight (kg)	69	66	NS
Serum creatinine (mg/dl)	1.39	1.57	NS
MMSE ( /30)	20.1	19.3	NS
ADL ( /24)	12.6	12.2	NS

Table 2: Primary outcome results

Outcome	Control (n = 81)	Intervention (n = 91)	P-value
<b>Discontinued or reduced drugs on admission</b>			
<i>Absolute</i>	3 (2, 5)	5 (3, 7)	0.001
<i>Relative to the number of drugs at admission</i>	0.32 (0.21, 0.49)	0.50 (0.42, 0.63)	<.001
<b>Reduced drugs on admission</b>			
<i>Absolute</i>	0 (0, 1)	0 (0, 1)	0.255
<i>Relative to the number of drugs at admission</i>	0.00 (0.00, 0.08)	0.00 (0.00, 0.11)	0.255
<b>Discontinued drugs on admission</b>			
<i>Absolute</i>	3 (1, 4)	4 (2, 6)	0.001
<i>Relative to the number of drugs at admission</i>	0.29 ± 0.28	0.50 ± 0.19	<.001*
<b>Identified by the RASP</b>			
<i>Absolute</i>	1 (1, 2)	2 (1, 4)	0.003
<i>Relative to the number of drugs at admission</i>	0.14 (0.08, 0.25)	0.25 (0.13, 0.34)	<.001

Table 3: Selection of secondary outcome results

Outcome	Control (n=81)	Intervention (n=91)	P-value
<b>Emergency department visits</b>			
Number of patients with at least one ED visit	31/79 (39.2%)	25/87 (28.7%)	0,19
Number of ED visits, without readmission	7/79	1/87	0,02*
Number of all ED visits	39/79	29/87	0,12
<b>Falls after discharge</b>			
Number of patients, falling at least once	20/71 (28.2%)	24/82 (29.3%)	1,00
Total number of falls	34/20	39/24	0,60
Number of fall-related injuries in fallers	15/20 (75%)	14/24 (58,3%)	0,34
Severity of fall-related injuries in injured fallers	7/15 (46,7%)	4/14 (28,6%)	0,45

## Conclusion

We showed that a two-phase pharmaceutical intervention reduced drug use in an older inpatient population in safe manner. Half of the recommendations made were based on the RASP list. A trend towards less emergency department visits was noted in the intervention group, while potentially having increased quality of life.