

# Association between potentially inappropriate medication and mild cognitive impairment in patients attending memory clinics, the Memento cohort

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# CONFLICT OF INTEREST DISCLOSURE

I have no potential conflict of interest to report

## POTENTIALLY INAPPROPRIATE MEDICATION (PIM)

- PIM: “the risk of adverse events outweighs the clinical benefit, particularly there is evidence in favour of a safer or more effective alternative therapy for the same condition”
- High prevalence in variety of population settings:
  - 21% in memory clinics
  - 25% in community-dwelling older adults
  - 50% in residential aged care facilities
- Association with increased risk of adverse drugs events and healthcare costs
- Few studies on association between cognitive Impairment, and:
  - The PIM use
  - The most prevalent classes of PIM use

Cross Drugs Aging 2016

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Pertersen RC. J Int Med 2004 & 2014

## OBJECTIVE

Assessment of the independent association between the PIMs (and the most prevalent PIMs) used and mild cognitive impairment (MCI) in a large nationwide cohort of subjects with isolated cognitive complaints (ICC) or MCI followed in memory clinics.



## METHODS – MEMENTO COHORT

- A multicenter national prospective cohort study including 2323 individuals consecutively recruited from 28 French memory clinics and followed-up over at least 5 years.
- Main inclusion criteria
  - Having at least a light cognitive deficit defined as performing worse than one standard deviation to the in one or more cognitive domains OR having isolated cognitive complaint regardless of its duration while being 60 years and older
  - Clinical Dementia Rating scale  $\leq 0.5$  and not demented
- Data collection
  - At least every year: complete neuropsychological assessment, clinical examinations, assessment of cognitive and physical health complaints, collection of medication data
  - At baseline and every 2 years: brain MRI and blood sampling, 18F-FDG-PET and lumbar puncture

## METHODS

- Cross-sectional analysis of baseline data from the Memento cohort
- All patients aged 65 years and older (N=1780)
- Data analysed
  - Sociodemographic: age, gender, education level
  - Cognitive status: MCI ( $\geq -1.5$  SD)/ICC, MMSE score, NPI-C
  - Medication exposure :
    - PIM Use : at least one PIM reported at baseline according to 2015 Beers criteria and the European list (EU) (7)-PIM
    - Main ATC classes of PIM = prescribed for more than 10% of participants
- Statistical analyses
  - Descriptive analyses
  - Multivariate logistic regression analysis to model the association between PIM use and MCI (outcome, ICC as reference category)
  - SPSS<sup>®</sup> version 22.0 for Windows (SPSS Inc., Chicago, USA)

Pertersen RC. J Int Med 2004 & 2014

By the American Geriatrics Society 2015, JAGS 2015

Renom-Guiteras, Eur Clin Pharmacol 2015

## RESULTS: Characteristics of analytical sample by PIM use

	PIM non-users (n = 835) n (%) or M (SD)	PIM users (n = 945) n (%) or M (SD)	p value (non-users vs users)
<b>Gender</b> [female]	465 (55.7)	618 (65.4)	< 0.001
<b>Age</b> [year]	73.9 (5.5)	75.0 (5.7)	< 0.001
<b>Education level</b> (n=1763)			
Primary level and less	95 (11.6)	144 (15.3)	< 0.001
Secondary level	349 (42.6)	447 (47.4)	
High level	376 (45.9)	352 (37.3)	
<b>Total number of drugs</b>	2.24 (2.03)	5.28 (2.79)	< 0.001
Number of PIMs	-	1,65 (0,93)	-
<b>MCI</b>	675 (80.8)	825 (87.3)	< 0.001
MMSE score [/30] (n=1777)	27.82 (2.01)	27.77 (1.98)	0.573
<b>NPI-C depression score</b> (n=1608)	1.06 (2.58)	1.47 (2.80)	0.003

**RESULTS:** Comparison PIM use (PIMs or the most prevalent classes of PIM) between MCI and ICC

	ICC n (%)	MCI n (%)	p value
PIM users (n=1780)	120 (42.9)	825 (55)	<b>&lt; 0.001</b>
Among PIM users (n=945)			
A02B – Peptic ulcer drugs	48 (40)	280 (33.9)	0.193
<b>H03A – Anti-thyroid synthesis</b>	40 (33.3)	179 (21.7)	<b>0.005</b>
<b>N05B - Anxiolytics</b>	14 (11.7)	165 (20)	<b>0.029</b>
N06A - Antidepressant	13 (10.8)	116 (14.1)	0.336
<b>N05C – Sedative-hypnotics</b>	7 (5.8)	112 (13.6)	<b>0.017</b>



## RESULTS: Association between PIM or main ATC classes of PIM and MCI

	MCI (vs ICC)	
	Unadjusted (OR – CI95%)	Adjusted* (OR – CI95%)
PIM user (non-user as ref.) (n=1780)		
<b>All PIMs</b>	<b>1.63 [1.26-2.11]</b>	<b>1.42 [1.03-1.96]</b>
PIM user (non-user as ref.) (n=945)		
Peptic ulcer drugs	0.77 [0.52-1.14]	0.64 [0.42-0.98]
AT synthesis	0.55 [0.37-0.84]	0.67 [0.43-1.06]
<b>Anxiolytic</b>	<b>1.89 [1.06-3.39]</b>	<b>1.88 [1.01-3.47]</b>
Antidepressant	1.35 [0.73-2.47]	1.49 [0.78-2.86]
<b>Sedative-hypnotics</b>	<b>2.54 [1.15-5.58]</b>	<b>2.27 [1.01-5.10]</b>

\* Adjusted for gender, age, education level, number of drugs, NPI depression score

## LIMITATIONS - STRENGTHS

- **Potential limitation**
  - Cross-sectional analysis of baseline data
- **Strengths**
  - Size of the sample
  - All medications
  - Standardisation

## SUMMARY

- More than half of participants included in the Memento cohort are exposed at baseline to PIM
- Significantly higher MCI odds with:
  - Any PIM use
  - Sedative-hypnotic and anxiolytic PIM use

## NEXT STEP

- Memento cohort: assessment of PIM impact on further evolution of cognitive profile of the participants
- Medication use needs to be improved in older adults

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