Drug treatment of patients with Alzheimer's disease dementia in three European countries over 18 months in an observational study (GERAS)

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Acknowledgements

This study was sponsored by Eli Lilly and Company. We would like to thank Bruno Vellas, Richard Dodel, Roy W. Jones, Marie-Ange Paget, Jeremie Lebrec and Grazia Dell'Agnello for their contributions to this presentation.

This study is sponsored and funded by Eli Lilly and Company

GERAS Primary Objective

- To assess the country costs associated with Alzheimer's disease (AD) for enrolled patients and caregivers over 18 months, stratified for different severity stages of patients' AD at baseline

Analysis Objective

- To describe AD drug treatment over 18 months using real-world data from three European countries

Methods: GERAS study design

- GERAS was an 18-month, prospective, observational study of patients with AD dementia of all severities who presented within the course of normal clinical care in France, Germany and the UK
- Patients were enrolled between October 2010 and September 2011
- The study included community-dwelling patients aged ≥55 years who had been diagnosed with probable AD dementia (according to NINCDS-ADRDA criteria[1]), and had a Mini Mental State Exam (MMSE) score of ≤26 and an informal caregiver
- MMSE score defined as mild (21–26 points), moderate (MMSE 15–20 points) or moderately severe/severe (MS/S; MMSE <15 points)

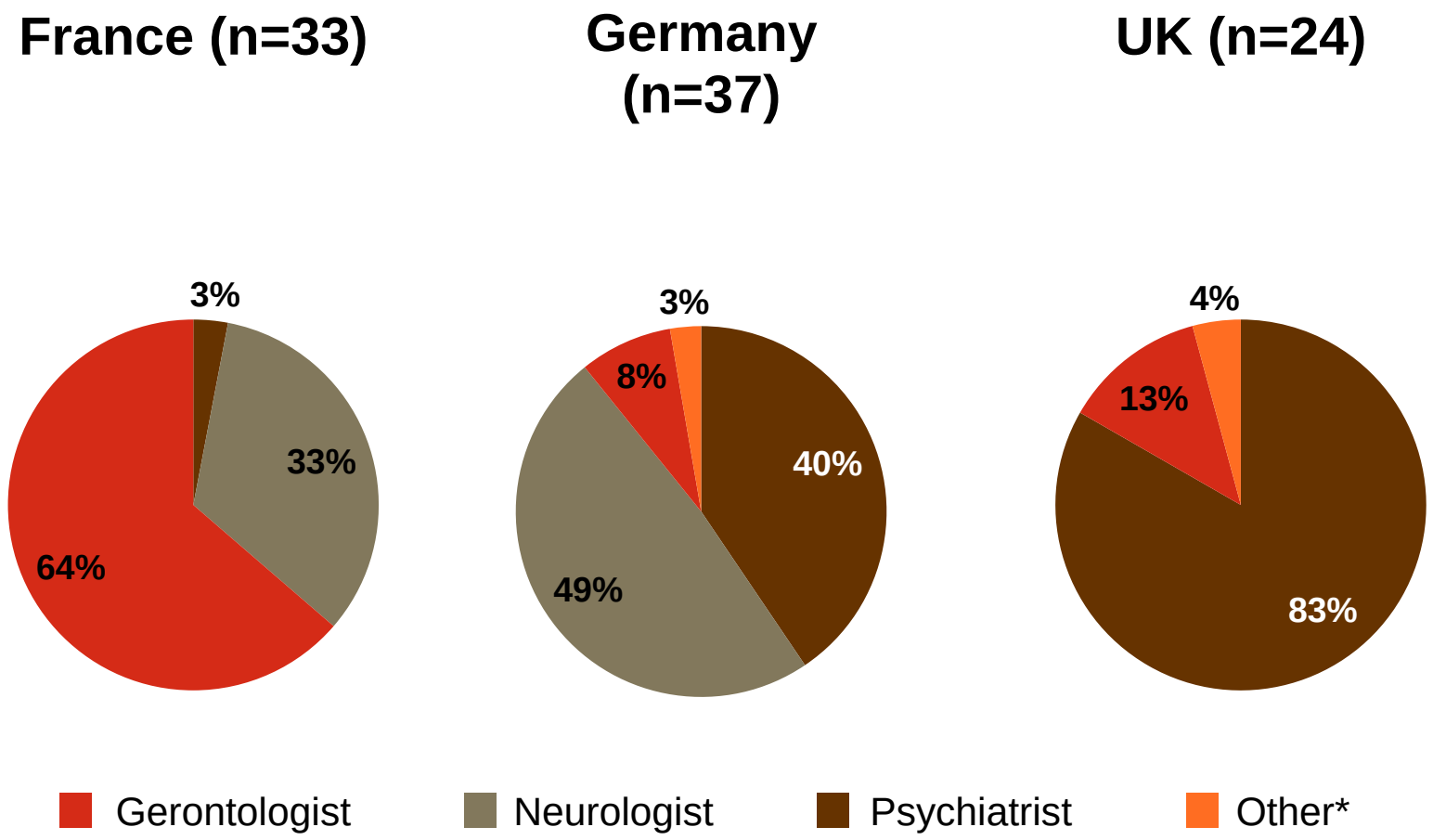
1. McKhann GM, et al. *Alzheimers Dement* 2011;7:263-9.

Methods: 6-Monthly Data Collection

- Patient resource use and caregiver time (Resource Utilisation in Dementia [RUD][1] instrument)
- Patient and caregiver demographics and characteristics
- Patient comorbidities
- Patient AD medication use
  - donepezil/rivastigmine/galantamine/memantine
  - start and stop dates
- Patient psychiatric medication use
  - antidepressants/antipsychotics/anxiolytics, benzodiazepines, hypnotics and sedatives/mood stabilizers

1. Wimo A et al. In: Health economics of dementia. Wimo A et al. (eds). John Wiley & Sons: London, 1998; 465–99.

GERAS Investigators by Country



*Psychologist (Germany; n=1) or general practitioner (UK; n=1).

Number of Patients at Baseline by Country

Patients with AD	Mild AD, n (%)	Moderate AD, n (%)	MS/S AD, n (%)	Overall, n
All countries	566 (37.9)	475 (31.6)	457 (30.6)	1495
France	138 (32.9)	136 (32.5)	145 (34.6)	419
Germany	228 (41.5)	156 (28.4)	166 (30.2)	550
UK	200 (38.0)	180 (34.2)	146 (27.8)	526

Full Analysis Set (FAS): all patients with AD (with a caregiver) who provided consent and fulfilled study entry criteria.
Mild AD = MMSE score 21–26 points, moderate AD = MMSE 15–20 points, moderately severe/severe (MS/S) AD = MMSE <15 points.

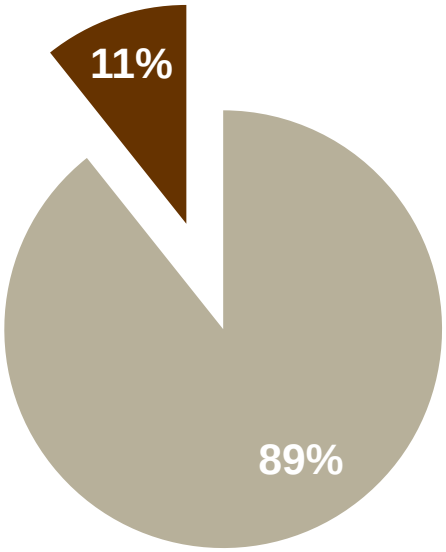
Patient Characteristics

	Mild AD (N=566)	Moderate AD (N=472)	MS/S AD (N=457)	Overall (N=1495)	p-value*
Age, mean (SD) years	77.3 (6.94)	77.8 (7.99)	77.6 (8.12)	77.6 (7.65)	0.934
Gender, n (%) female	271 (47.9)	269 (57.0)	279 (61.1)	819 (54.8)	**<0.001**
Marital status					0.489
Married/cohabiting, n (%)	423 (74.7)	321 (68.2)	332 (72.6)	1076 (72.0)	
Living location					0.167
Urban, n (%)	437 (77.2)	362 (76.9)	332 (72.6)	1131 (75.7)	
Living accommodation					**0.015**
In own home, n (%)	553 (97.9)	448 (94.9)	427 (93.8)	1428 (95.7)	
Living arrangement (if living in own home)					**<0.001**
Living alone, n (% of total at home)	103 (18.6)	102 (22.8)	48 (11.2)	253 (17.7)	

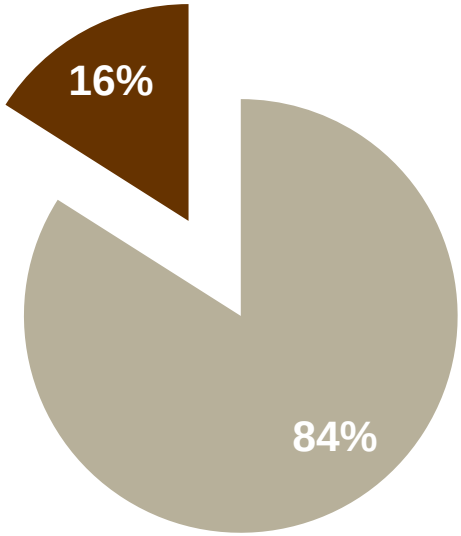
Data are baseline characteristics. Percentages are based on the number of respondents (0–7% missing).
*ANOVA p-value for continuous variables, CMH test p-value for categorical variables between AD severity groups.

AD Medication Use at Baseline

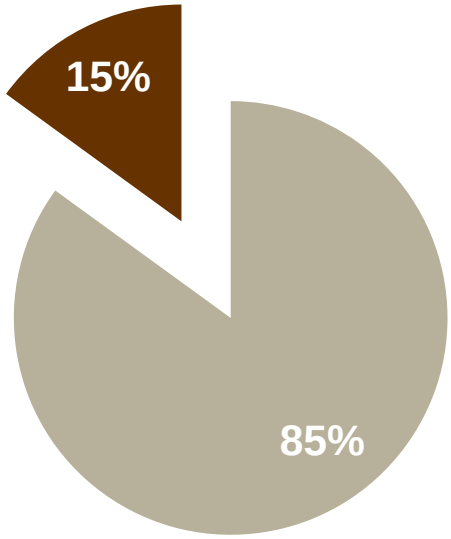
France (n=419)



Germany (n=550)



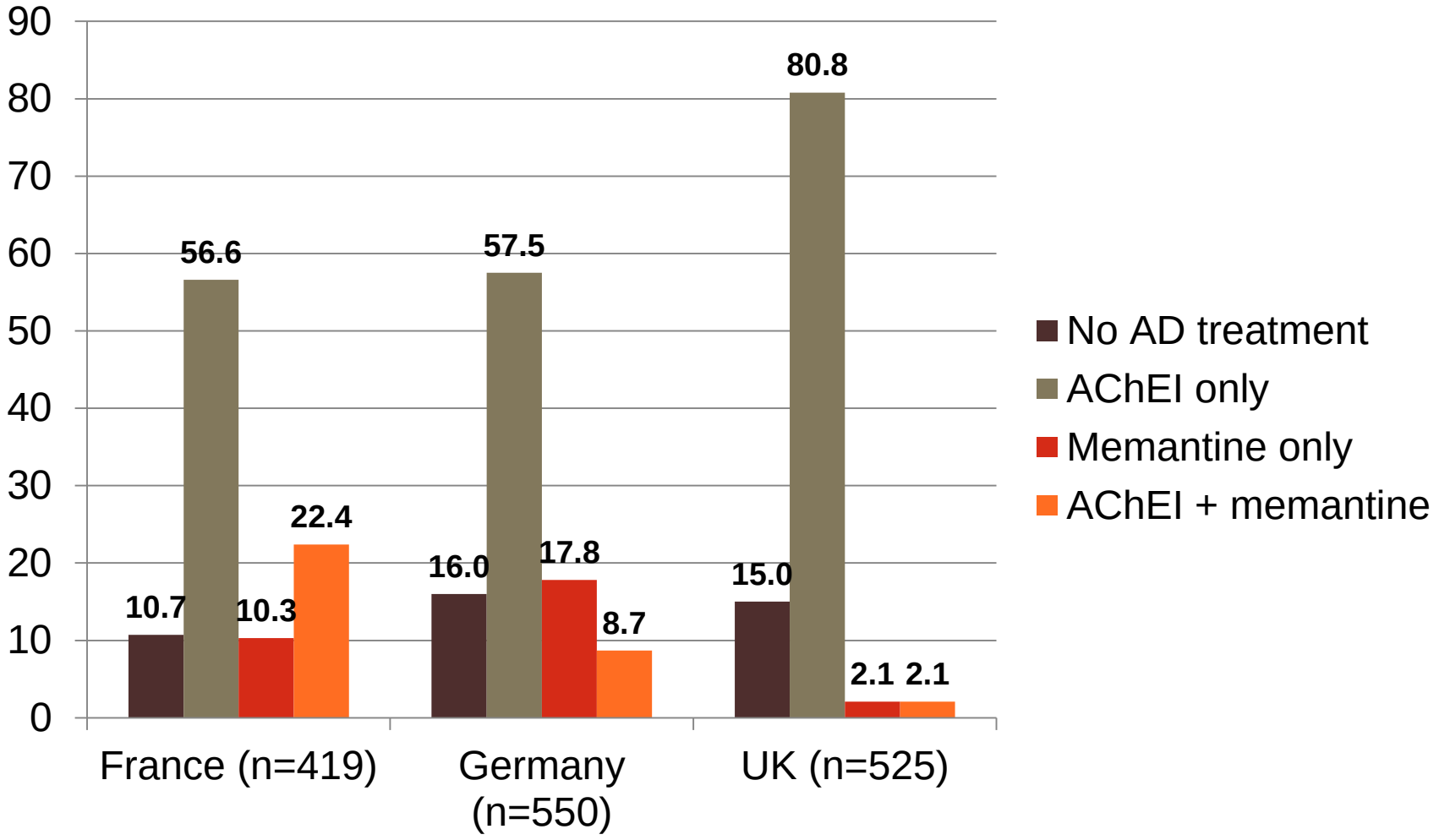
UK (n=526)



No AD medication

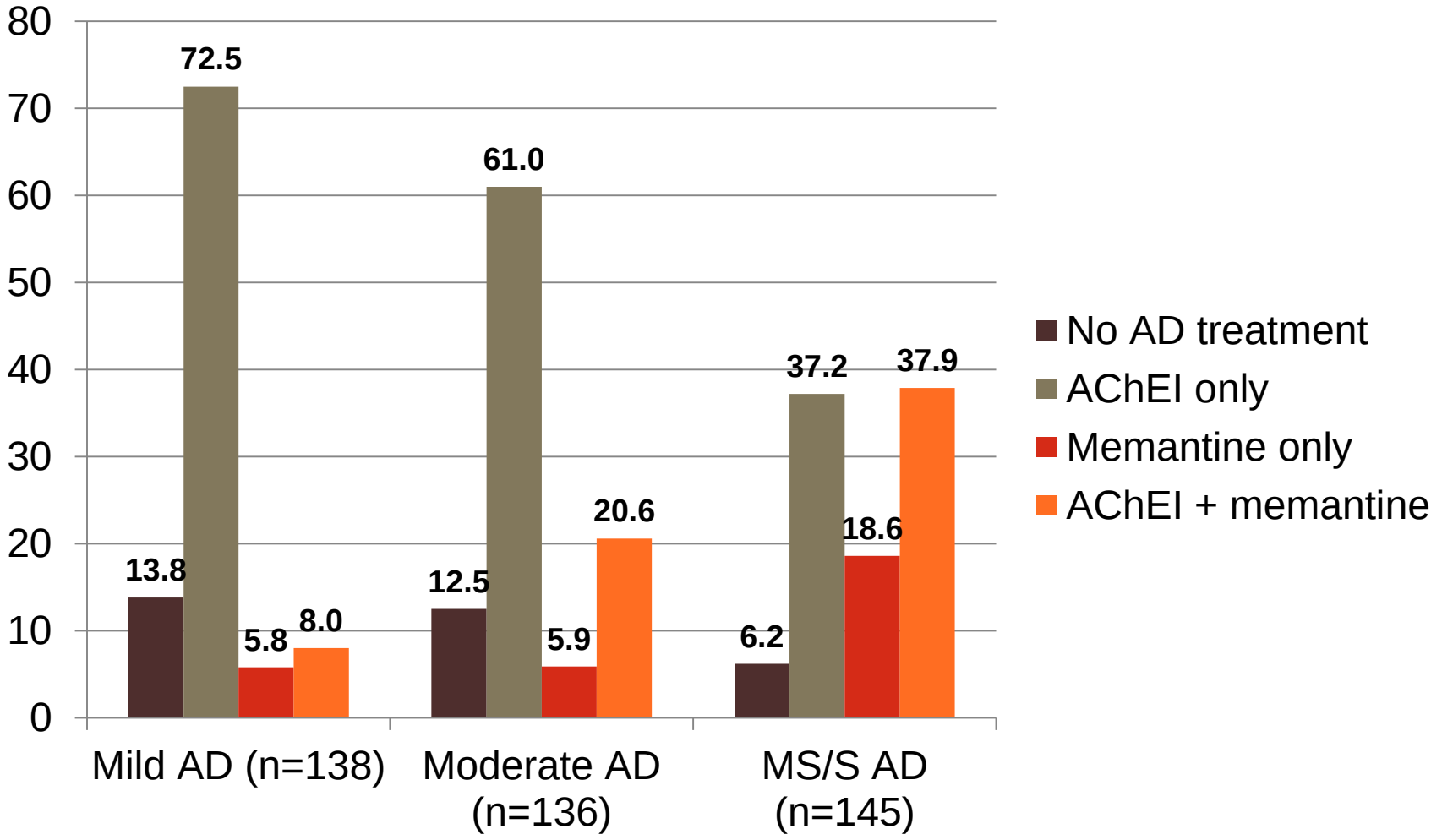
AD medication

Baseline Treatments by Country

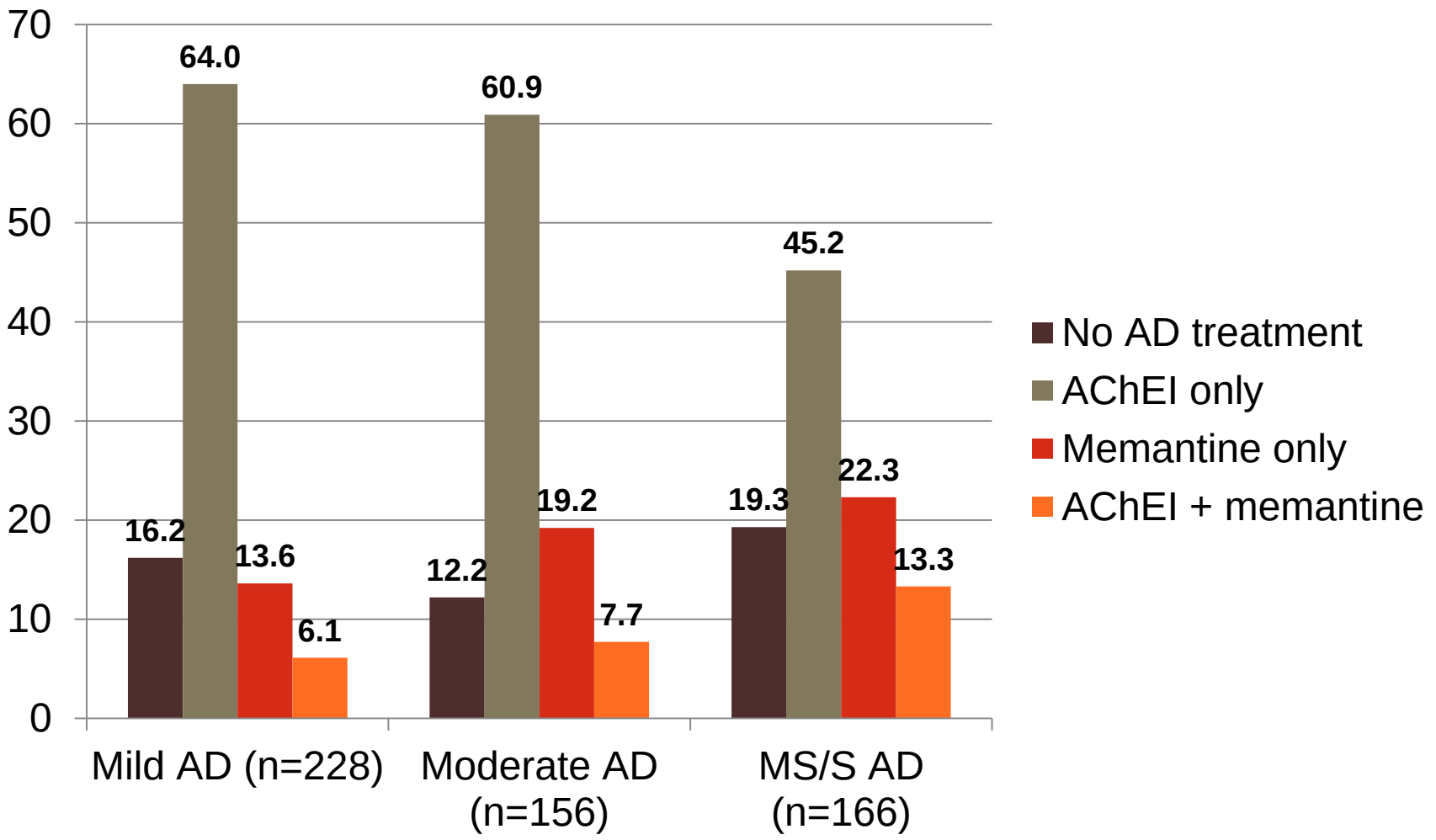


AChEI = acetylcholinesterase inhibitor.

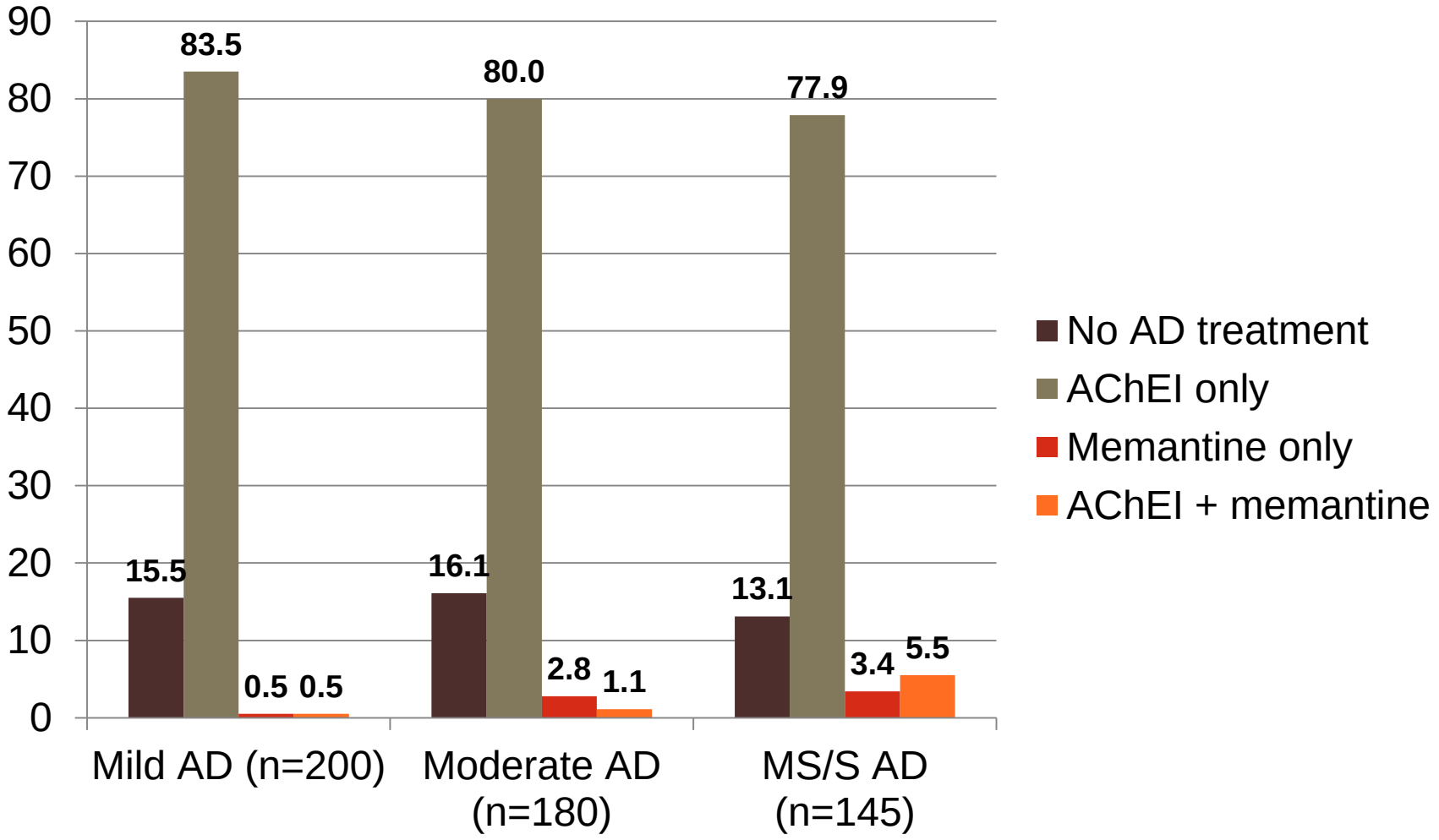
Baseline Treatments by Severity – France



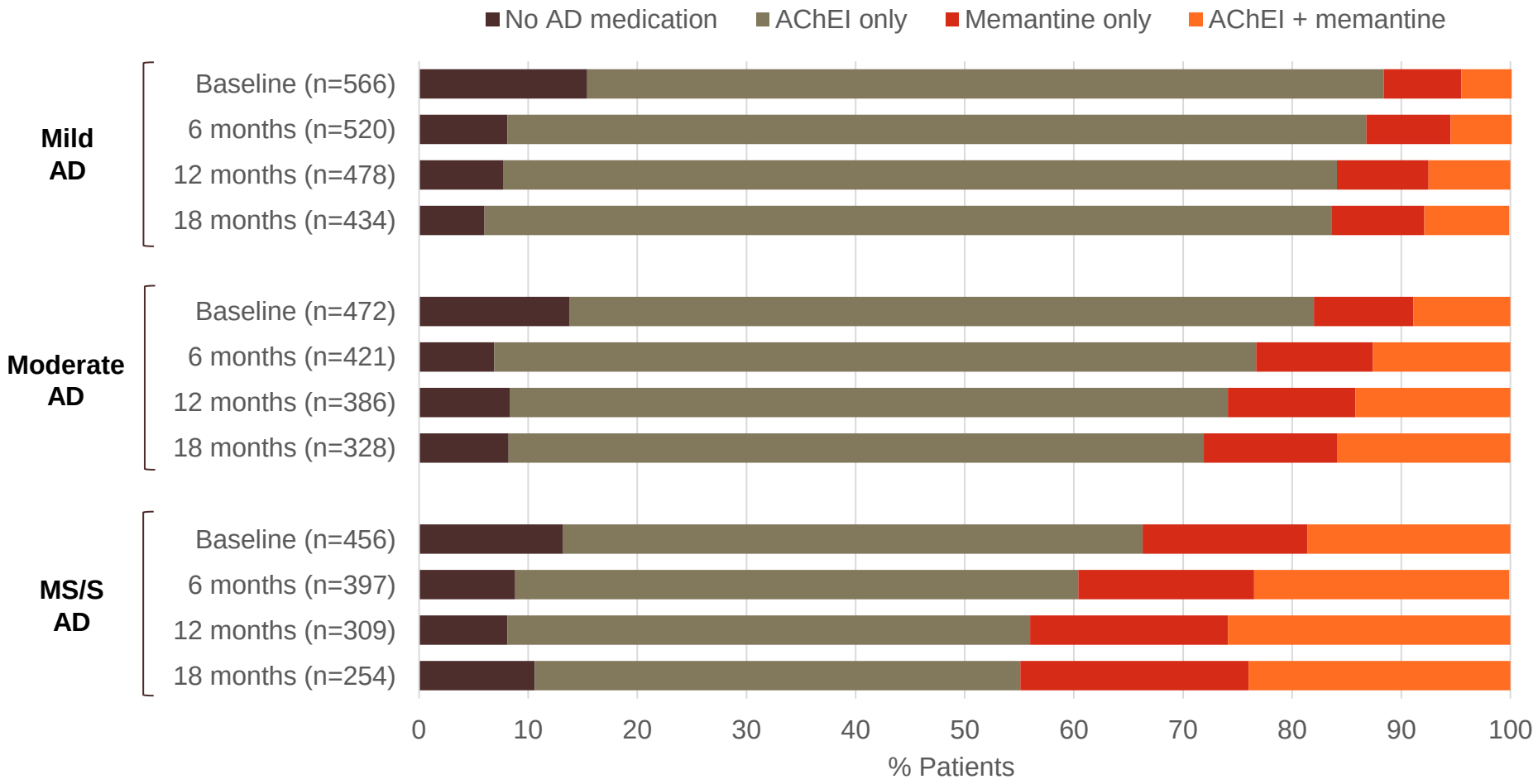
Baseline Treatments by Severity – Germany



Baseline Treatments by Severity – UK

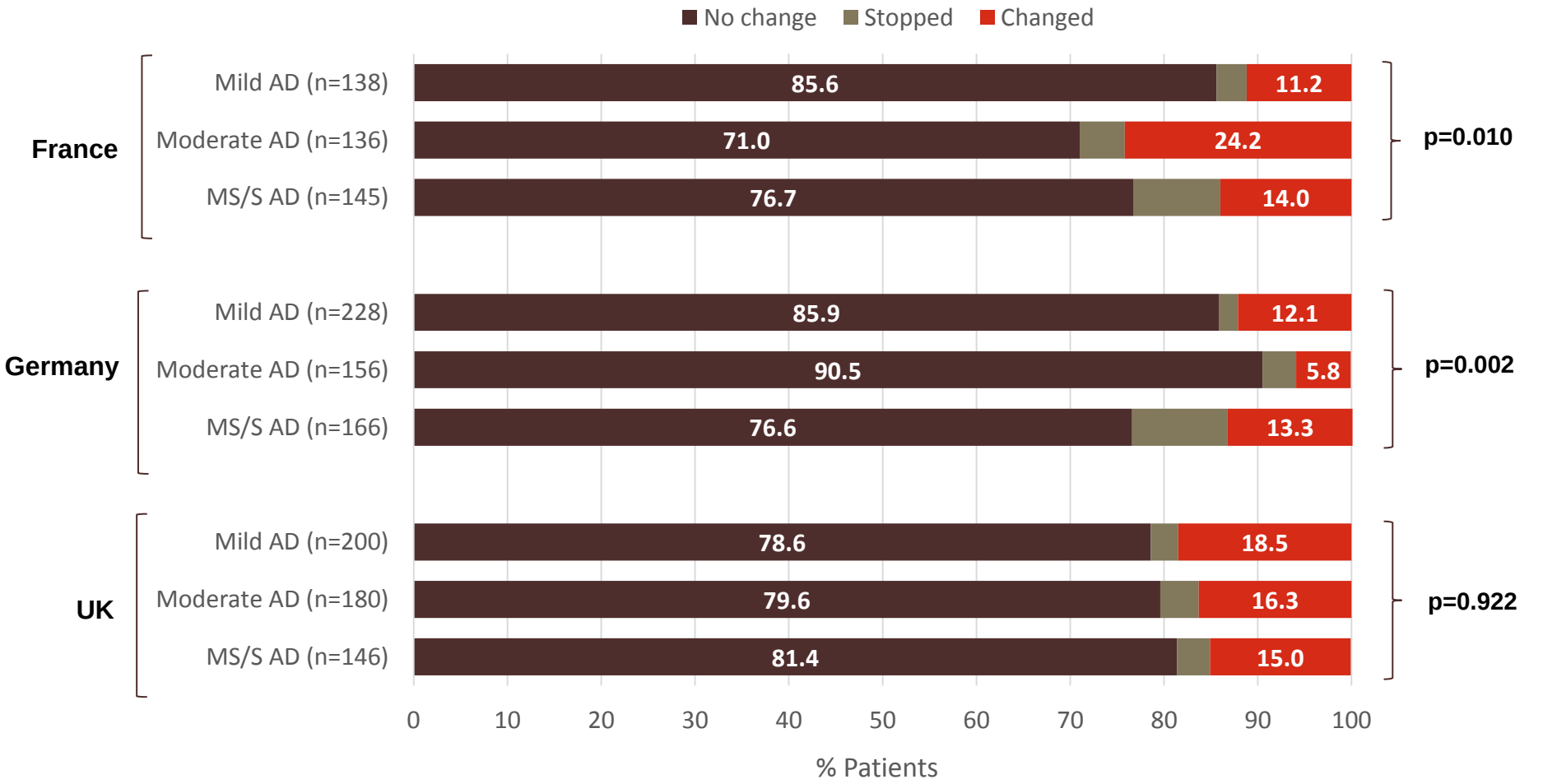


AD Treatment Over Time



Percentages are based on the number of patients with any ongoing treatment at that visit (n value in brackets).
$p<0.001$ between AD severity groups at each time point (CMH test for categorical variables).

AD Treatment Changes by Country from Baseline to 18 Months



Based on data collected during 18 months of follow-up. Percentages are based on the number of patients with data available (n value in brackets). CMH test p-value between AD severity groups.

Changes in Category of AD Treatment from Baseline to 18 Months

	France (n=419)			Germany (n=550)			UK (n=526)		
	Mild (n=14)	Mod (n=30)	MS/S (n=18)	Mild (n=24)	Mod (n=8)	MS/S (n=17)	Mild (n=32)	Mod (n=24)	MS/S (n=17)
Starting an AChEI	**21%**	17%	11%	**42%**	0%	**24%**	**50%**	**33%**	6%
From one AChEI to another	14%	3%	0	8%	**25%**	6%	**22%**	**21%**	0%
Adding memantine to AChEI	**29%**	**33%**	17%	17%	13%	**29%**	16%	**25%**	**53%**
From AChEI to memantine	7%	17%	11%	13%	0%	0%	6%	17%	**24%**
Dropping AChEI from AChEI and memantine	7%	17%	**28%**	0%	0%	6%	0%	0%	6%
Other changes	21%	13%	33%	21%	63%	35%	6%	4%	12%

Percentages are based on patients with a change in treatment during 18 months of follow-up.

Conclusions

- Country differences in treatment of patients with AD using real-world data
- Approx. 15% patients not prescribed AD treatment
- Majority of AD patients remain on same treatment over 18 months
- High rates of AChEI use and increasing memantine use with more severe AD largely consistent with clinical guidelines
- Observed use of memantine in patients with mild AD – not approved
- Real-world data essential to describe treatment patterns

Thank you for your attention

GERAS study

A study of patients and caregivers in Alzheimer's