EPO-415 Cholinesterase inhibitors and risk of epilepsy in Alzheimer's disease - study on 32 121 patients from SveDem

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Conclusions

In line with existing research, this study has not identified a link between ChEI and increased EP risk. The association between ChEI use and decreased mortality is coherent with other studies. The decreased EP risk found in patients with early-stage dementia is understandable given disease characteristics and emerging research on an anti-epileptogenic ChEI element, such as the recently outlined cholinergic anti-inflammatory pathway. Such an element could also constitute an explanation behind the decreased mortality.

Introduction

Alzheimer's disease (AD) is the most common type of dementia and Cholinesterase inhibitors (ChEIs) are the first line symptomatic treatment. Given the increased incidence of epilepsy (EP) in AD, the question arises about whether ChEIs influences the risk of developing EP.

Methods

This cohort study was based on 32,121 patients with AD in the Swedish Dementia Registry SveDem (www.svedem.se) with a study period of ten years. The propensity-score matching balanced out most differences in baseline patient characteristics between ChEI users and non-users present in the total cohort The primary aim was to explore a possible association between ChEI use and EP in AD. The secondary aim was to examine if ChEI use influences mortality.

Results

No association was found between ChEI use and EP, apart from in patients with a MMSE score above 25 who experienced a decreased EP risk of 30.5% when treated (HR 0.69; 95% CI: 0.49–0.99). A significant association was found between ChEI use and decreased mortality (HR 0.88; 95% CI: 0.85–0.92).

Total cohort (N = 32,121)	No ChEI (N = 11,066)	ChEI (N = 21,055)	p-value
Female. N (%)	20,012 (60.9%)	12,109 (63.0%)	<0.001
Age. Mean (SD) Years	82.0 (6.9)	77.9 (7.7)	<0.001
Diagnosis			<0.001
AD. N (%)	5,312 (48.0)	14,296 (67.9)	
MD. N (%)	5,754 (52.0)	6,759 (32.1)	
MMSE baseline score. Mean (SD)	20.1 (4.6)	22.0 (4.2)	<0.001
Living alone	52.3%	42.7%	<0.001
Nursing home	8.5%	3.2%	<0.001
Comorbidities			
Hypertension	49.7%	37.5%	<0.001
Diabetes pharmacologically treated	18.4%	14.6%	<0.001
Myocardial infarct	13.1%	8.1%	<0.001
Peripheral vascular disease	6.8%	4.2%	<0.001
Cerebrovascular diseases	19.6%	13.3%	<0.001
Chronical pulmonary disease	10.9%	7.5%	<0.001
Cancer	38.6%	33.9%	<0.001
Stroke	13.4%	8.1%	<0.001
Atrial fibrillation	21.8%	12.6%	<0.001
Alcohol abuse	2.8%	2.0%	<0.001
Smoking	1.6%	1.3%	0.077
Obesity	1.4%	1.0%	0.002
Depression	8.0%	7.3%	0.020
Epilepsy	2.7%	1.8%	<0.001
Trauma	15.9%	11.0%	<0.001
Brain tumor	0.8%	0.7%	0.14
Co-medication			
Antixiolytics	17.7%	14.6%	<0.001
Hyponotics	26.3%	22.4%	<0.001
Antipsychotics	6.6%	3.7%	<0.001
Antidepressants	30.3%	30.2%	0.90
Memantine	44.5%	4.0%	<0.001
ChEI	100.0%	0.0%	<0.001
Specific ChEI. N (%)			
Donepezil	0 (0%)	11,643 (55.3)	
Rivastigmine	0 (0%)	4,716 (22.4)	
Galantamine	0 (0%)	4,695 (22.3)	

Abbreviations: N = Number, ChEI = Cholinesterase inhibitor, SD = Standard deviation, AD = Alzheimer's disease, MD = Mixed dementia, MMSE = Mini-Mental State Examination.

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