

Patients Level Cost of Treating Adverse Events in Alzheimer’s Disease for US-FDA Approved Treatments

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CONCLUSION

Rivastigmine is the drug that has the greatest cost for treating AEs, while donepezil 23 mg has the lowest cost.

Background

Alzheimer’s disease (AD) constitute a public health crisis affecting the US aging population and society.

- An estimated 6.7 million Americans aged 65 years and older are living with AD in 2023. Seventy-three percent are age 75 or older.¹
- By 2050, the total estimated prevalence of AD is expected to be 12.7 million.¹
- The pharmacological managements of AD include two symptomatic approaches: The inhibition of acetylcholinesterase and the inhibition of N-methyl-D-aspartate receptors.
- Acetylcholinesterase inhibitors (AChEIs) such as donepezil, galantamine, and rivastigmine are the recommended treatments for managing mild to moderate AD.^{1,2,3}
- In 2023, AD and other dementias will cost the nation \$345 billion — not including the value of unpaid caregivers.¹
- Medicare and Medicaid are expected to cover \$222 billion.¹

OBJECTIVE

This study aims to calculate the patient level annual cost of managing AEs related to AD treatments, per treatment, treatment category, and discontinued AEs per treatment for all US FDA-approved drugs for AD as of May 31, 2023.

Methodology

- A micro-costing method was used. Thus, a clinician provided assumptions about drugs, procedures, and distribution needed for the management of each AEs.
- Cost data for AEs treatment included drug acquisition, healthcare resource utilization, dosing schedules, and number of administrations from US FDA labels.
- Unit costs were taken from May 2023 Red Book™.
- Healthcare resource utilization and AE costs were from CMS office visits fee schedule and treatment costs from Red Book™.

RESULTS

- The total annual cost of treating AEs per person per year for galantamine is ~ \$31, rivastigmine is ~ \$661, rivastigmine tdm is ~ \$33, donepezil (5 or 10 mg) is ~\$37, donepezil (23 mg) is ~ \$29, memantine is ~ \$69 , lecanemab is ~ \$51, and aducanumab is ~ \$172.
- The greatest cost for immunotherapy Drugs is aducanumab (~\$172), and the lowest is lecanemab (~\$51).
- The total annual cost per class is Cholinesterase inhibitors (~\$791), N-methyl-D-aspartate (NMDA) antagonists (~\$69), and immunotherapies (~\$223).
- The total annual cost of discontinuation due to AEs per person per year for galantamine is \$2.68, rivastigmine is \$17.93, rivastigmine tdm is \$1.55, donepezil (5 or 10 mg) is \$3.18, donepezil (23 mg) is \$3.02, , memantine is \$0.0, lecanemab is ~ \$0.0 and aducanumab is \$0.27.

Table: AEs management unit cost & total annual cost per AD treatment

Adverse Events	Galantamine	Rivastigmine	Rivastigmine tdm	Donepezi 5 & 10 mg	Donepezi 23 mg	Memantine	Lecanemab	Aducanumab
Abdominal Pain	\$0	\$44	\$0	\$0	\$0	\$0	\$0	\$0
Anorexia	\$0	\$47	\$0	\$9	\$6	\$0	\$0	\$0
Anxiety	\$0	\$14	\$5	\$0	\$0	\$0	\$0	\$0
Asthenia	\$0	\$34	\$0	\$0	\$0	\$0	\$0	\$0
Confusion	\$0	\$152	\$0	\$0	\$0	\$49	\$0	\$112
Cough	\$0	\$0	\$0	\$0	\$0	\$0	\$10	\$0
Depression	\$0	\$27	\$8	\$0	\$0	\$0	\$0	\$0
Diarrhea	\$4	\$34	\$4	\$7	\$6	\$0	\$10	\$11
Dizziness	\$10	\$97	\$0	\$0	\$9	\$13	\$0	\$0
Dyspepsia	\$0	\$25	\$0	\$0	\$0	\$0	\$0	\$0
Ecchymosis	\$0	\$0	\$0	\$5	\$0	\$0	\$0	\$0
Headache	\$7	\$52	\$0	\$0	\$0	\$7	\$31	\$49
Infection	\$0	\$0	\$0	\$6	\$0	\$0	\$0	\$0
Infusion-related reactions	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insomnia	\$0	\$19	\$5	\$5	\$0	\$0	\$0	\$0
Malaise	\$0	\$9	\$0	\$0	\$0	\$0	\$0	\$0
Nausea	\$6	\$51	\$2	\$2	\$4	\$0	\$0	\$0
Somnolence	\$0	\$4	\$0	\$0	\$0	\$0	\$0	\$0
Urinary Tract Infection	\$0	\$12	\$5	\$0	\$0	\$0	\$0	\$0
Vomiting	\$4	\$40	\$3	\$4	\$4	\$0	\$0	\$0
Total Costs AEs, Per treatment	\$30.8	\$660.6	\$33.1	\$37.3	\$29.2	\$68.8	\$51.0	\$172.1

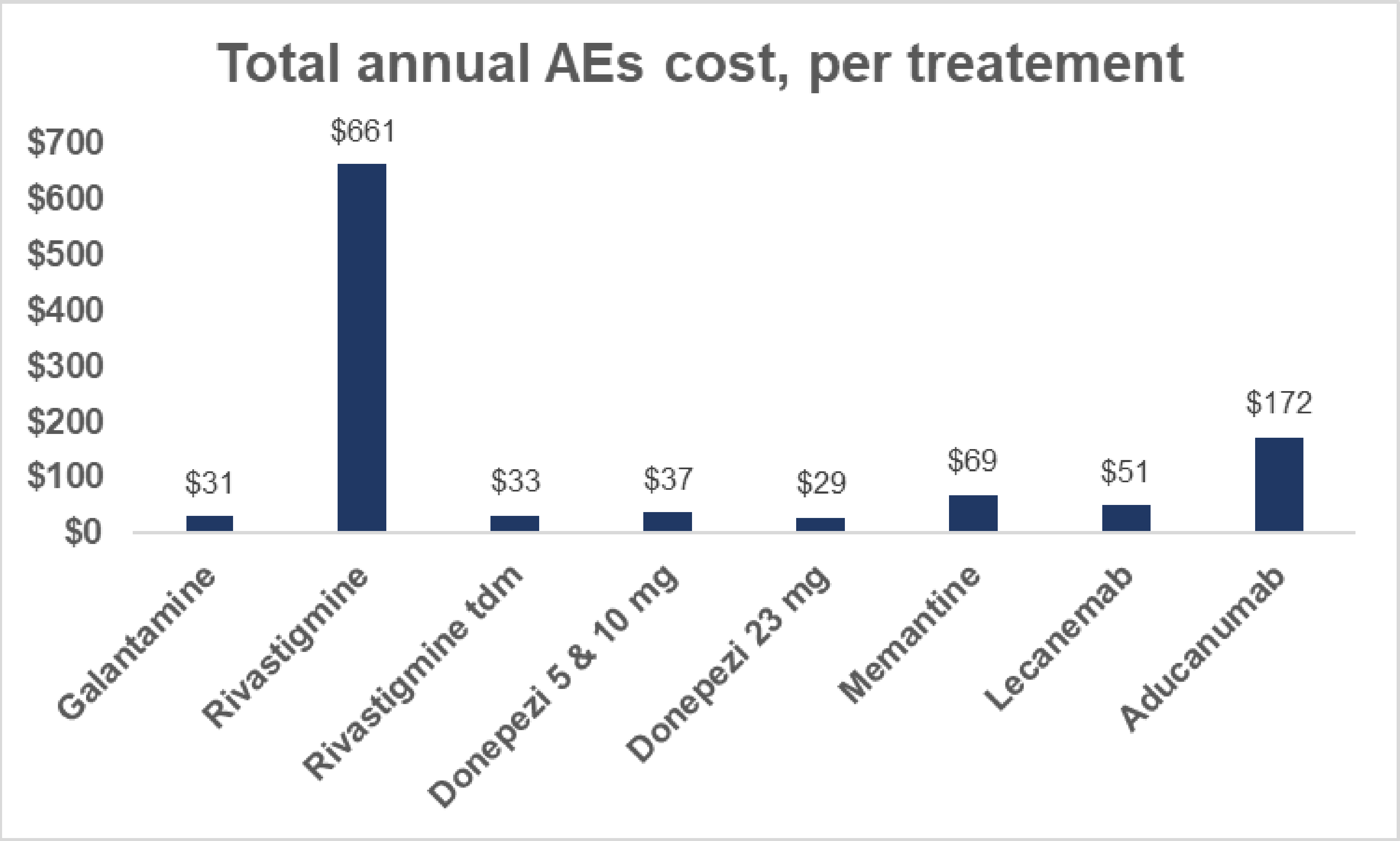


Figure: AEs management total annual cost per AD treatment

Discussions

- This study report the total cost of treating adverse events in Alzheimer’s diseases..
- The study estimated total annual cost for treating AEs per person per year for each drugs and classes.

References
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