TRUVETA

Real-World Trends in APOE Genetic Testing Associated with Lecanemab

HSD112

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Background

Existing knowledge

- More than six million people suffer from Alzheimer's Disease in the US.[1]
- Lecanemab, a medication that aims to treat the disease process, was shown to slow cognitive decline in early-stage Alzheimer's Disease.[2]
- Lecanemab received accelerated approval in January 2023, but coverage was limited;[3] following full FDA approval in July 2023, broader coverage is now available.
- A decision is expected from the European Medicines Agency (EMA) in late 2023 or early 2024.
- Carriers of the APOE ε4 gene experienced higher incidence of brain swelling and/or hemorrhage; therefore, APOE testing is recommended before initiating lecanemab.[2]
- Testing for APOE ε4 may be a leading indicator of intent to seek treatment with lecanemab.

Objective

- To describe changes in APOE genetic testing since 2018 and to describe the demographic and social drivers of health (SDOH) differences in 1) a population with Alzheimer's or dementia, 2) those receiving APOE genetic testing, and 3) those receiving lecanemab.

Methods

Data

- A subset of Truveta Data was used. Truveta Data is comprised of real-world US electronic health record (EHR) data, which is aggregated, normalized, and de-identified from US health care systems comprising clinics and hospitals.
- Data included conditions, medications requests (e.g., prescriptions), prescription claims, laboratory values, demographics, and SDOH.

Population

- Patients were included if they received an Alzheimer's or dementia diagnosis between January 2016 and September 2023 within a Truveta health system.

Social drivers of health

- Own or rent place of living
- Distance to closet first-degree relative
- College attendance
- Address stability (measured by number of moves within the last year)
- Individual income range

APOE testing trends

- We measured the monthly rate of APOE tests per patients with a first-time Alzheimer's or dementia diagnosis. A seasonally adjusted autoregressive 1 (AR1) model was used to test for trends in the rate over time.

Lecanemab trends

- We identified people who had received an infusion or prescription for lecanemab; we measured the time between the first diagnosis and 1) APOE test (if available) and 2) the first prescription/administration.

Results

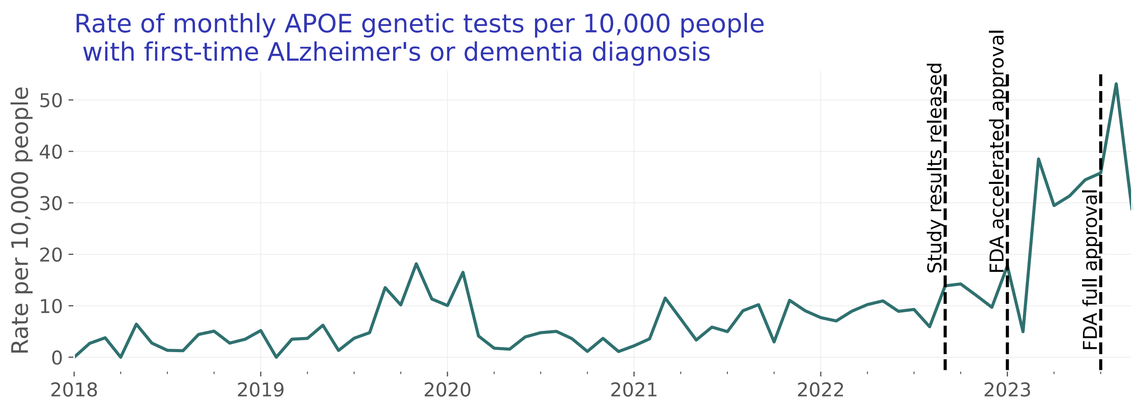
Population demographics and SDOH

		Overall	No APOE Test	APOE Test	Received Lecanemab*
n		779,599	779,021	578	44
Sex	Female	60.0%	60.0%	62.2%	47.7%
	Male	40.0%	40.0%	37.8%	52.3%
Age	18 - 30	2.9%	2.9%		
	30 - 45	3.3%	3.3%	0.3%	
	45 - 60	5.4%	5.4%	3.8%	9.1%
	60 - 75	20.9%	20.9%	35.8%	54.5%
	75 - 85	33.8%	33.8%	48.3%	36.4%
	85+	33.7%	33.7%	11.8%	
Race	Asian	2.8%	2.8%	3.8%	2.3%
	African American	10.3%	10.3%	4.2%	
	Other Race	5.3%	5.3%	3.6%	
	White	81.6%	81.6%	88.5%	97.7%
Ethnicity	Hispanic or Latino	6.9%	6.9%	5.4%	2.3%
	Not Hispanic or Latino	93.1%	93.1%	94.6%	97.7%
Own or rent address	Own	75.5%	75.5%	81.0%	92.7%
	Rent	24.5%	24.5%	19.0%	7.3%
Distance to closest relative	<25 miles	92.8%	92.8%	95.0%	95.5%
	25 - 100 miles	2.3%	2.3%	0.8%	2.3%
	100 - 500 miles	2.2%	2.2%	1.9%	2.3%
	Over 500 miles	2.8%	2.8%	2.3%	
College attendance	Yes	8.0%	8.0%	6.7%	18.2%
	None Recorded	92.0%	92.0%	93.3%	81.8%
Address stability	Stable	98.2%	98.2%	98.3%	100.0%
	Un-stable	1.8%	1.8%	1.7%	
Income range	$0 - 35,000	26.3%	26.3%	4.5%	2.3%
	$35,001 - 60,000	50.4%	50.4%	32.8%	31.8%
	$60,001 - 100,000	19.2%	19.2%	41.7%	50.0%
	$100,001+	4.1%	4.1%	21.0%	15.9%

***Note:** The population who received lecanemab was studied independent of those who received APOE testing.

- People with APOE genetic testing, lived closer to a first-degree relative, were more likely to own their place of living and were more likely to have a higher income.

APOE testing trends



- The rate of APOE genetic testing significantly increased since January 2023 ($p = 0.02$) and continues to increase in trend ($p<0.001$).
- The rate increased 3.6x between April – September 2022 and April – September 2023.

Lecanemab trends

- 44 people received lecanemab since it's approval; a higher percentage were male, 60-75 years old, owned their place of residence, and had higher incomes that the overall population.
- First prescription/administration occurred 63.3±53.9 (mean±std) days after the APOE test and 519.0±494.4 days after the initial diagnosis.

Conclusions

- In a large and diverse real-world US EHR dataset, we found **a 3.6x increase in APOE genetic** testing for an Alzheimer's and dementia population between April and September 2023, compared to one year prior.
- People who received APOE genetic testing or who received lecanemab had a **higher socioeconomic status**, than the overall population.
- Future work is needed for continuous monitoring of increased APOE genetic testing and associated uptake in lecanemab by social drivers of health.

Disclosures: All authors are/were employees of Truveta Inc.

REFERENCES
[1] National Institute on Aging. "Basic's Of Alzheimer's Disease and Dementia What is Alzheimer's Disease?' (2021).
[1] van Dyck, Christopher H., et al. "Lecanemab in Early Alzheimer's Disease." *NEJM*. 388.1 (2023): 9-21.
[2] US Food and Drug Administration. "FDA Grants Accelerated Approval for Alzheimer's Disease Treatment". (2023).