Characterization of Lp(a) Measurement In a Large U.S. Health Care Dataset

D.E. MacDougall[1] , M.P. McGowan[1], K. A. Wilemon[1] C.D. Ahmed[1], K.D. Myers[1]

1. Family Heart Foundation, Pasadena, CA

Background and Aim

Elevated lipoprotein(a) [Lp(a)] is a well-recognized, independent risk factor for atherosclerotic cardiovascular disease (ASCVD)[1] that is estimated to be present in 20% of the general population according to an NLA 2019 Scientific Statement, "Use of Lipoprotein(a) in clinical practice: A biomarker whose time has come." Nonetheless, this genetic lipoprotein is rarely assessed.[2]

This study aims to characterize individuals receiving Lp(a) measurement and their providers using an expansive, real-world US dataset.

Methods

The Family Heart Database™ includes diagnostic/procedural/prescription data from claims and/or laboratory data for >300 million individuals from the US who were screened or treated for any form of cardiovascular risk. This analysis dataset includes 112 million people with laboratory data from 2012-2019.

A cohort of individuals with at least one Lp(a) measurement and sufficient healthcare data was identified. Demographics (mean ± standard deviation), ASCVD history, and healthcare provider at time of Lp(a) measurement were characterized. Probable familial hypercholesterolemia (FH) status was determined using a validated machine learning model.

Results

Lp(a) was rarely measured:
- 0.3% (n=335,726) of individuals in the Family Heart Dataset had at least one Lp(a) measurement

	Family Heart Dataset	With Lp(a) Assessment
n	112,826,464	335,726
% of Total in Dataset	100%	0.3%
Age (mean±SD)	54.5±39.5	59.9±39.7
Female	39.4%	52.5%
Race/Ethnicity		
Black	6.4%	7.8%
Hispanic	4.8%	7.1%
White	28.8%	53.6%
Other/Unknown	60.0%	31.5%
Risk Factors:		
Hypertension	32.4%	53.7%
Hyperlipidemia	29.5%	50.6%
Diabetes	15.0%	24.6%
Cardiovascular History:		
ASCVD only	12.2%	27.6%
Prob. FH with ASCVD	0.2%	1.2%
Prob. FH without ASCVD	0.3%	1.7%
Diag. FH with ASCVD	0.1%	0.4%
Diag. FH without ASCVD	0.1%	0.6%
No ASCVD or FH	87.2%	68.5%

Table 1. Demographics and relevant medical history of all individuals in the dataset compared to those with Lp(a) measurement.

Results

A small number of health care providers were responsible for ordering the Lp(a) lab tests for 50% of individuals with a measurement:
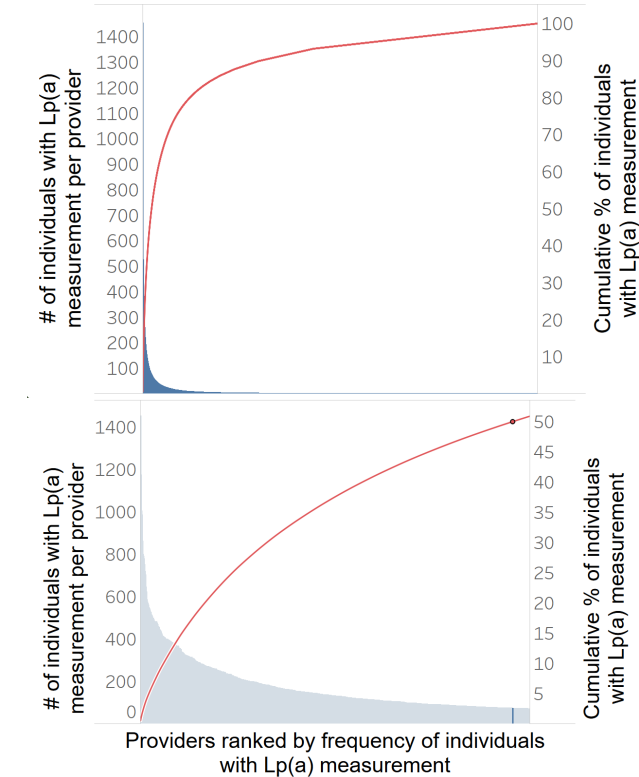- n=629 of 810,119 (<0.1%) providers

Figure 1. All (n=810,119; above) and top ordering (n=629; below) health care providers in the dataset ranked by frequency of individuals with Lp(a) measurement.

Results

Specialty* of the top ordering (n=629) health care providers:
- Internal medicine (26%)
- Family medicine (23%)
- Internal medicine/CVD (14%)
- Physician assistants & advanced practice nursing providers/nurse practitioner/family (5%)

*Within this classification system, lipidology was not represented as a separate specialty.

Discussion and Conclusion

- **Measurement of Lp(a) was rare within a large US health care dataset.**
- **Ordering Lp(a) was concentrated within a small number of all health care providers.**
- **Individuals who had Lp(a) measured were older and had more risk factors, 31% had ASCVD**
- **Additional research is needed to characterize the barriers and facilitators of Lp(a) measurement for health care providers and individuals.**

[1] Reyes-Soffer G, Ginsberg HN, Berglund L, et al., Lipoprotein(a): A Genetically Determined, Causal, and Prevalent Risk Factor for Atherosclerotic Cardiovascular Disease: A Scientific Statement from the American Heart Association. Arteriosclerosis, Thrombosis, and Vascular Biology, 2022;42:e48–e60. [2] Wilson DP, Jacobson TA, Jones PH, et al., Use of Lipoprotein(a) in clinical practice: A biomarker whose time has come. Journal of Clinical Lipidology, 2019;13:374-392.