

Characteristics of patients with a lipoprotein(a) assessment – a health insurance claims database analysis

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Funding Acknowledgement: Type of funding sources: Private company. Main funding source(s): The analysis has been funded by Novartis Pharma GmbH, Nuremberg.

Background: Elevated lipoprotein(a) [Lp(a)] has been established as marker of cardiovascular [CV] risk, however, it is not commonly assessed.

Purpose: The aim of the study was to characterize patients who underwent their first Lp(a) testing regarding sociodemographic characteristics and clinical outcomes.

Methods: A retrospective analysis was performed on data from 4 million individual patients in a local database that provides complete, longitudinal, anonymized claims data. The data are representative of the German population in terms of age and gender. Lp(a) billing codes documented in the ambulatory setting were used to identify adult patients in 2015 to 2018 (index quarter defined as the first Lp(a) test in the respective year). These patients must not have had any Lp(a) test in the year prior to the index quarter. Patient data needed to be available for at least 1 year before and 1 year after the Lp(a) test or until death, whichever came first. Patients were followed for a maximum of four years.

Results: Within the four-year period, 36,609 patients (0.83% of the analysis set) had an Lp(a) test, of whom the majority (58%) were women. 50% of the women (median age 49 years) and 32% of the men (median age 56 years) were younger than 50 years.

The most prevalent comorbidities (based on International Classification of Diseases, version 10, German modification) at index were: dyslipidemia (E78) 46%, essential hypertension (I10) 46%, dorsalgia (M54) 25%, overweight/obesity (E66) 18%, chronic ischemic heart disease (I25) 16%, type 2 diabetes mellitus (E11) 15%, other coagulation defects (D68) 14%, depressive episodes (F32) 14%; disorders of refraction and accommodation (H52) 13%, somatoform disorders (F45) 13%, other non-toxic goiter (E04) 13%, other hypothyroidism (E03) 13%, and chronic kidney disease (N18) 11%.

The rates of cardiovascular events and procedures are listed in the table below.

Conclusions: Lp(a) tests are rarely performed in Germany. Women are more often tested than men, and in women this is done at a younger age. The data suggest that CV events/ CV hospitalizations frequently trigger the first Lp(a) assessment. The population tested displayed a high prevalence of cardiovascular comorbidities. The data identify an opportunity to better characterize the CV risk by testing Lp(a) once in a lifetime independent of prior CV events as recommended by current European Society of Cardiology/European Atherosclerosis Society guidelines.

Time-adjusted rate of events leading to hospitalizations/interventions prior to Lp(a) testing, at the time of testing (index), and during follow-up

Event/Intervention	Rate (per 100 person-years)		
	Baseline ¹	Index quarter ²	Follow-up ³
Non-cardiovascular hospitalization (ICD not I*)	16.71	62.78	27.79
Cardiovascular hospitalization (ICD I*)	5.55	23.46	5.75
Ischemic heart disease (ICD I24*, I25*)	0.62	3.62	1.03
Stable / unstable angina (ICD I20*)	0.59	2.96	0.85
Myocardial infarction (ICD I21*, I22*, I23*)	0.57	2.01	0.42
Diagnostic heart catheter (OPS 1-27*)	1.83	9.42	2.66
Percutaneous coronary intervention (OPS 8-837*; 8-83d)	1.06	4.85	1.06
Coronary artery bypass graft surgery (ICD Z95.1, Z95.5, OPS 5-361*, 5-362*, 5-363*)	0.17	0.55	0.18
Other percutaneous interventions (OPS 8-84c, 8-84d, 8-84a, 8-840 – 8-849, 5-38a, 8-836)	0.37	2.11	0.70
Heart valve-related interventions (OPS 5-35*)	0.08	0.33	0.17
Cerebrovascular disease / ischemic stroke (ICD I63*, I64*, I69.3, I69.4)	0.44	1.62	0.39
Transient ischemic attack (ICD G45)	0.15	0.73	0.23
Peripheral arterial disease (ICD I70.2, I70.9)	0.33	1.87	0.56

¹Medical history prior to index quarter for at least 1 year and up to 4 years
²Quarter of the respective calendar year where the first detected Lp(a) test was performed
³Follow-up after index quarter for at least 1 year and up to 4 years or until death, whichever came first
 ICD International Classification of Diseases, version 10, German modification; OPS German procedure classification