Experts call for routine measurement of lipoprotein (a) levels

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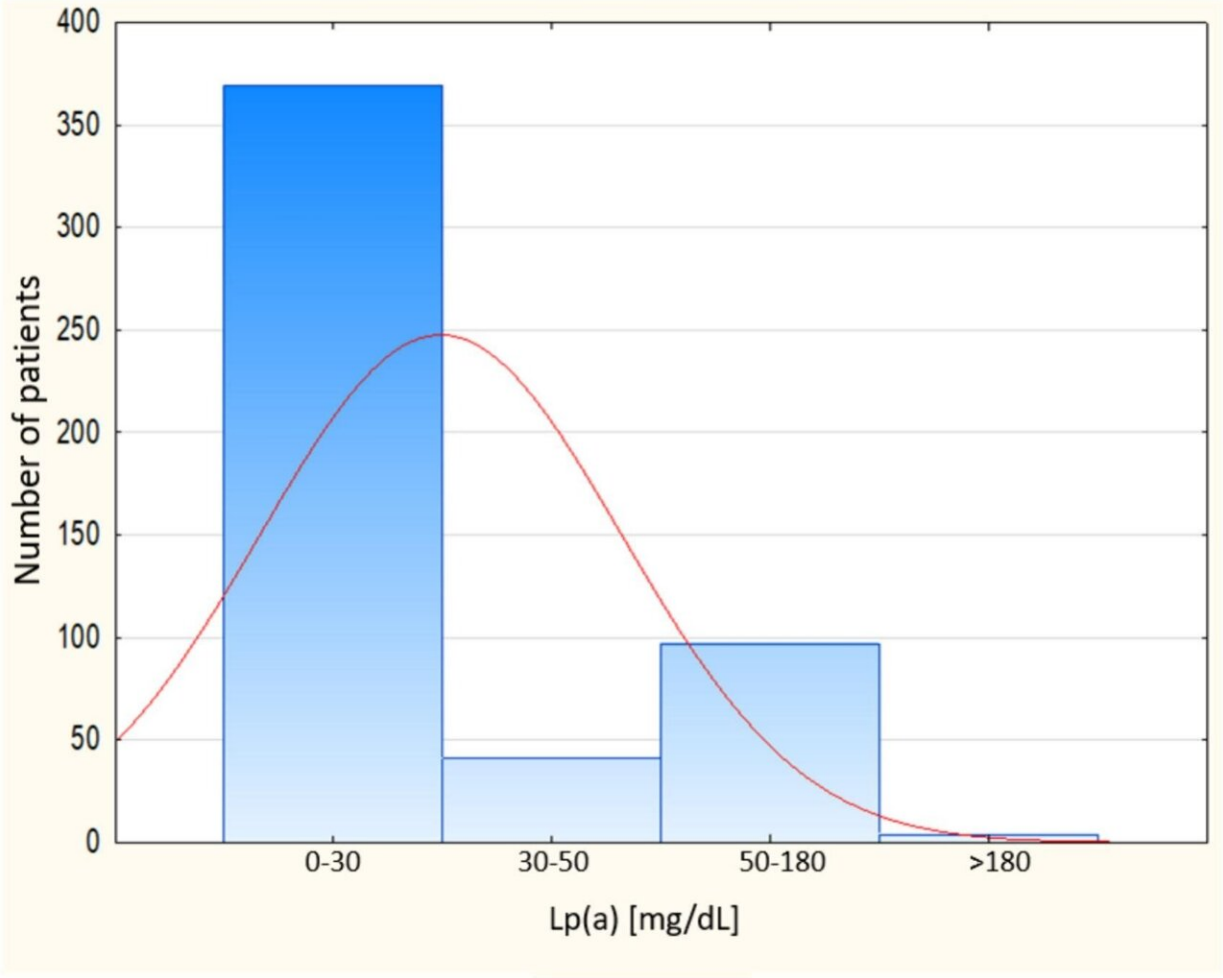

Histogram of serum lipoprotein(a) concentrations distribution in the study population divided into four categories. Credit: *Progress in Cardiovascular Diseases* (2024). DOI: 10.1016/j.pcad.2024.08.004

Heart experts say that everyone should have their levels of lipoprotein (a), or Lp(a), measured routinely at least once in life, following research from one of the most populous EU countries, Poland, that shows how common high levels of Lp(a) are in the general population.

The findings come from several studies presented at the European Society of Cardiology (ESC) Congress taking place in London, UK, this week and published in *Progress in Cardiovascular Disease* and also appearing in the journal *Archives of Medical Sciences*.

LP(a) is a parcel of fats (also known as lipids) and a protein (known as apolipoprotein(a)) that carries the fats around the body. Lp(a) is very sticky, and high levels have been shown to lead to faster furring of the coronary arteries and may also participate in the development of blood clots. These can cause heart attacks, stroke, heart disease and other cardiovascular diseases. Lp(a) levels are determined by people's genes, and sometimes by conditions such as kidney disease or underactive thyroid glands.

People with premature myocardial infarction (heart attack) and familial hypercholesteremia (FH), an inherited condition that causes extremely high cholesterol levels, will have their Lp(a) levels measured more often, but this is not common for the rest of the population.

It is estimated that around 1.5 billion people worldwide have elevated Lp(a) levels, higher than 50 milligrams per one-tenth of a liter (mg/dL) of blood, but accurate estimates for most European countries are still lacking. In addition, little is known about factors and conditions that could increase the risk of high Lp(a), what drugs could interfere with it, its role in complications during pregnancy, and whether low Lp(a) levels might increase the risk of diabetes.

Now, results from studies of three groups of Polish patients show for the

first time that Lp(a) levels were found in between 20% and 34% of people either receiving preventive care or being treated for diseases of the heart and blood vessels (cardiovascular disease, CVD). They also demonstrate that the prevalence depends on the patients' initial risk for cardiovascular disease.

Maciej Banach, Professor of Cardiology at the Medical University of Lodz, Poland, told the ESC Congress, "These results show that Lp(a) is highly prevalent in Poland, which is the eighth most populous country in the EU. They suggest that Lp(a) should be measured more routinely than happens at present, because as many as six million adults may have high Lp(a) out of a population of approximately 38.5 million.

"This is especially important in Europe, particularly in Central and Eastern European countries, where people tend to have a high risk of cardiovascular diseases, even before any symptoms or events occur. This is due to unhealthy lifestyles that include smoking, lack of exercise, overweight and obesity, and the consumption of alcohol and junk food."

In the first study, Prof. Banach and colleagues analyzed data from 511 patients (53% were women) at the Polish Mother's Memorial Hospital Research Institute—the PMMHRI-Lp(a) study. This registry was established in 2022, and the researchers aimed to understand patients' characteristics, prevalence of high Lp(a) levels and its association with other CVD risk factors in people with a high or very high CVD risk who attended departments or clinics for cardiology, endocrinology, congenital heart diseases, diabetes and metabolic diseases.

"We found Lp(a) levels of 30 mg/dL or higher in 20% of patients, and levels of 50 mg/dL in 28% of patients. We noticed significant differences in elevated Lp(a) levels in patients with familial hypercholesterolemia, and after heart attack and with thyroid diseases. These are groups in which we should be especially careful to measure

Lp(a) levels. We did not see any differences in Lp(a) by sex or age. PCSK9 inhibitors were the only therapies associated with a significant reduction in Lp(a) levels of about 45%," said Prof. Banach.

In the second study, the STAR-Lp(a) study—led by Associate Professor Michal Chudzik, of the Centre of Postgraduate Medical Education in Warsaw and Medical University of Lodz, Poland, the researchers analyzed data from 553 patients (66% were women) with risk factors for CVD but who did not have established CVD. They underwent coronary computed tomographic angiography (CTA). The aim was to use the coronary artery calcium (CAC) score to assess the relationship between elevated Lp(a) levels and the risk of developing narrowed arteries (atherosclerosis).

Prof. Banach said, "We found that the prevalence of Lp(a) levels ranged from 21.5% for Lp(a) of 30 mg/dL or more, to 13.5% for Lp(a) of 50 mg/dL or more. A prevalence of 21.5% means that about six million adult Poles have elevated Lp(a).

"We also confirmed a direct link between Lp(a) and atherosclerosis progression; for every 10 mg/dL increase in Lp(a), the CAC score increases by 16 points. What is more, in those with Lp(a) of 50 mg/dl or less, the chance of having a CAC Score of 0, meaning there was no sign of coronary artery disease, was 2.3 times higher than in those with elevated levels of Lp(a).

"These results confirm that if elevated Lp(a) levels are found in a patient, a CT scan of the coronary arteries with assessment of the CAC score should be considered to understand the level of risk of CVD."

In a third study, presented to the Congress by Associate Professor Krzysztof Dyrbuś, from the Silesian Center for Heart Diseases at the Medical University of Silesia, Katowice, Poland, the researchers

analyzed data from the Zabrze-Lip(a)R Registry of 2001 patients with very high and extremely high risk of CVD. They wanted to understand the characteristics of patients at risk of atherosclerotic cardiovascular disease (ASCVD) and whether increasing levels of Lp(a) might cause faster furring of the arteries.

They found that 27% (540 patients) with established ASCVD had Lp(a) levels above 30 mg/dL; the prevalence of higher Lp(a) levels was very high in patients with chronic coronary syndrome (32%), in patients who had undergone percutaneous coronary intervention (32%) and in patients who had a previous heart attack (34%).

Prof. Banach said, "In addition, following diagnosis of acute coronary syndrome, elevated Lp(a) levels were found in 25% of patients, which could mean about 20,000 patients a year in Poland are affected by raised Lp(a). Among patients who have had a heart attack, we found elevated Lp(a) levels in 34%. In Poland there are about one million people who have had a heart attack, which means 340,000 may have elevated Lp(a), and this adds to an increased risk of another heart attack or other CVD problem."

Assoc. Prof. Dyrbuś added, "These results show that 27% of patients who are at very high risk and have ASCVD experience an additional risk relating to an elevated Lp(a) level. Every second patient in this group had chronic coronary syndrome. Interestingly, one of the factors significantly related to elevated Lp(a) levels was a higher platelet count. This raises the question as to whether these patients should be treated with aspirin, something that is not currently recommended. More research needs to be carried out into this."

More information: Bożena Sosnowska et al, The prevalence, patients' characteristics, and hyper-Lp(a)-emia risk factors in the polish population. The first results from the PMMHRI-Lp(a) registry, *Progress*

in Cardiovascular Diseases (2024). DOI: 10.1016/j.pcad.2024.08.004\

Krzysztof Dyrbuś et al, Lipoprotein(a) and its impact on cardiovascular disease – the Polish perspective: Design, and first results of the Zabrze-Lipoprotein(a) Registry, *Archives of Medical Science* (2024). DOI: 10.5114/aoms/188294

ABSTRACT NO: 83965: Study of lipoprotein(a) and its impact on atherosclerotic cardiovascular disease: design, rationale, and first results of the Zabrze-Lip(a)R Registry. esc365.escardio.org/ESC-Congress/speakers/8439