

Distribution of Blood Cholesterol Profile in Untreated Korean Population

Kwang-il Kim, MD

Department of Internal Medicine, Seoul National University College of Medicine, Seoul National University Bundang Hospital, Seongnam, Korea

Refer to the page 141-148

Park et al.¹⁾ reported a very interesting result regarding the distribution of blood lipid levels and lipoprotein-cholesterol fractions based on age and gender among 17530 untreated participants of the fifth (2010–2012) Korean National Health and Nutritional Examination Survey (KNHANES).

Their study demonstrated that blood lipid levels and lipoprotein-cholesterol fractions increased with age in females, while it rapidly increased during young adulthood and decreased during and after middle age in males. Whereas, a rapid increase was noted in young adulthood. This characteristic change in blood lipid profiles with aging and gender difference have been reported in other countries, however, the levels of total and low density lipoprotein-cholesterol (LDL-C) were lower than that of United States (US) population.²⁾ In addition, Korean females showed lower levels of high density lipoprotein-cholesterol (HDL-C) than US females. In contrast, the triglyceride level was higher in both Korean men and women. The difference in lipid profile is important to identify the prevalent risk factors for cardiovascular disease. In other words, atherogenic dyslipidemia, defined as low HDL-C plus elevated triglycerides, might be a more important risk factor in Korean population rather than

increased total or LDL-C level.³⁾ A high carbohydrate diet may be the one of the possible causes of the high triglyceride levels in Koreans. However, other factors such as genetic factors might be associated with the difference in lipid profile according to ethnic background.

The risk of coronary heart disease is lower in women than in men, but increases in women after menopause. Rapid increase in plasma LDL-C level is believed to be associated with increased risk of coronary heart disease, and this characteristic change has been attributed to the effect of sex hormones on LDL metabolism. However, further studies are required to identify risk factors associated with the changes in lipid and lipoprotein-cholesterol levels during menopausal transition.⁴⁾

The dramatic changes in lipid profile around the time of menopause in females indicate the importance of lipid surveillance and control of hyperlipidemia in that particular age group. In other words, it should be emphasized that risk of cardiovascular disease is likely to increase during this period, thus, therapeutic lifestyle changes should be highly recommended to combat such increases. Moreover, it may be prudent to increase the frequency of risk factor monitoring during this time to identify women in a timely fashion, who can benefit from pharmacologic management beyond lifestyle modification.⁵⁾

In this study, a decrease in the levels of total and LDL-C after 55 years in case of males and after 60 years in females was observed. Actually, the relative importance of cholesterol as a risk factor for coronary heart disease tends to diminish with advancing age. Accordingly, the relative risk per unit change in total and LDL-C decreases with age. However, an attenuated risk ratio for blood lipid levels is offset by a greater incidence of cardiovascular events in advanced age; hence, the attributable risk and the potential benefit of dyslipidemia treatment rises with age. Although the relative risk reduction with statin therapy has been reported to be lower in older patients when compared to younger counterpart, statin treatment has been associated with significantly greater reduction of

Received: February 28, 2015

Accepted: March 9, 2015

Correspondence: Kwang-il Kim, MD, Department of Internal Medicine, Seoul National University College of Medicine, Seoul National University Bundang Hospital, 166 Gumi-ro, Bundang-gu, Seongnam 463-707, Korea
Tel: 82-31-787-7032, Fax: 82-31-787-4052
E-mail: kikim907@snu.ac.kr

• The author has no financial conflicts of interest.

This is an Open Access article distributed under the terms of the Creative Commons Attribution Non-Commercial License (<http://creativecommons.org/licenses/by-nc/3.0>) which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

absolute risk in older patients than in younger patients due to enhanced rate of incidence of cardiovascular event in older patients.⁶⁾ Nevertheless, the importance of lipid as a risk factor of ischemic heart disease and the cost-effectiveness of statin therapy in older Korean population should be investigated in the future studies considering the relatively low level of lipid profiles and low prevalence of atherosclerotic diseases.

Finally, it is concluded that the total and LDL-C levels decreased among older adults (age range from 55 to 60 years). However, it is hypothesized that this finding could be due to cohort effect or selection bias. Accordingly, we need longitudinal data to confirm the effect of age on the levels of lipid and lipoprotein-cholesterol fractions.

References

1. Park JH, Lee MH, Shim JS, et al. Effects of age, sex, and menopausal status on blood cholesterol profile in the Korean population. *Korean Circ J* 2015;45:141-8.
2. Kannel WB, Vokonas PS. Demographics of the prevalence, incidence, and management of coronary heart disease in the elderly and in women. *Ann Epidemiol* 1992;2:5-14.
3. Chapman MJ, Ginsberg HN, Amarenco P, et al. Triglyceride-rich lipoproteins and high-density lipoprotein cholesterol in patients at high risk of cardiovascular disease: evidence and guidance for management. *Eur Heart J* 2011;32:1345-61.
4. Schaefer EJ, Lamon-Fava S, Cohn SD, et al. Effects of age, gender, and menopausal status on plasma low density lipoprotein cholesterol and apolipoprotein B levels in the Framingham Offspring Study. *J Lipid Res* 1994;35:779-92.
5. Bittner V. Menopause, age, and cardiovascular risk: a complex relationship. *J Am Coll Cardiol* 2009;54:2374-5.
6. Raffel OC, White HD. Drug insight: statin use in the elderly. *Nat Clin Pract Cardiovasc Med* 2006;3:318-28.