

## Low Density Lipoprotein Cholesterol Target Goal Attainment Rate in Korean Patients with Diabetes

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Hypertension, dyslipidemia, and smoking are all factors that increase the risk of cardiovascular disease in patients with type 2 diabetes [1]. Among them, one of the most important risk factors is dyslipidemia.

Among lipoproteins, low density lipoprotein cholesterol (LDL-C) level is the most important predicting factors for cardiovascular disease, and many large-scale studies have been ongoing for many years to determine the target value for LDL-C treatment [2]. Since the risk of cardiovascular disease in type 2 diabetes patients is higher than that in healthy, the target LDL-C value in diabetes patients has been emphasized as being even more important than other metrics [3]. When the recommended LDL-C treatment goals of the 2003 Adult Treatment Panel III (ATP III) of the National Cholesterol Education Program (NCEP) and the 2008 American Diabetes Association (ADA) released consensus with the American College of Cardiology (ACC) [4] and the dyslipidemia treatment goal guidelines in accordance with the 2011 European Society of Cardiology (ESC) and the European Society of Arteriosclerosis (ESA) were examined, recent trends generally call for more aggressive LDL-C reduction than what has been seen in previous guidelines particularly in the patient group with the highest risk, where an LDL-C target value less than 70 mg/dL is encouraged [5]. Based on the ESC and the ESA guidelines, cardiovascular disease, severe chronic kidney disease, and target organ damage are all included in the highest risk factors for the diabetes group. Even when diabetes is the only risk factor,

the target value for LDL-C is recommended to be less than 70 mg/dL [5].

The LDL-C treatment target values have gradually been getting more aggressive all over the world. Although the changes in these values are aggressive, there is no set guideline for LDL-C treatment target values in Koreans, specifically Koreans who have diabetes. There are also very few studies that show the actual level of success of dyslipidemia treatment according to this guideline or how effectively the treatment target value is achieved (achievement rate). Hwang et al. [6] performed a study on diabetes patients over 18 years of age who were receiving treatment for hyperlipidemia. Research was conducted on the difference between the achievement rate of actual treatment target value of LDL-C and recognition rate of target values by medical personnel (expected achievement rate). Among the patients who had received treatment, 35.9% (approximately 1/3 of the total participants) reached the actual LDL-C target value, while that the expected achievement rate was reported in 70.6% of the total participants. In addition, even when lipid levels did not reach the target value, 65.3% of patients were receiving the same statin dosage as when the treatment was started. The authors felt that these results were due to a lack of recognition of the target lipid values by the medical personnel. So, in order to decrease the risk of cardiovascular disease in Korean diabetes patients and in order for LDL-C treatment goals to be reached, they proposed that the recognition standards of the medical personnel be changed [6].

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A limitation to this study is that they did not consider whether participants performed any sort of diet or exercise, and drug compliance was also not considered. In actual clinical practice, it could easily be seen that lipid levels did not reach the target values, and clinicians were able to provide adequate care. In particular, in diabetes patients at relatively high risk for cardiovascular disease, statin dosage is increased, being able to reach the target value is the most feasible basis. In the future, even when patients receive treatment, prospective studies regarding the difficulty to reach the lipid target value (due to the low success rate) are required. In addition, during dyslipidemia treatment, statin drug therapy is not the only treatment method used; diet management and exercise are often combined with the treatment process. Additional studies on other positive effects, the need for education, and effectiveness of these treatments will be very helpful in the treatment of dyslipidemia.

## CONFLICTS OF INTEREST

No potential conflict of interest relevant to this article was reported.

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