# Alirocumab Reduces LDL Cholesterol in Diabetes Patients

Alirocumab is safe and effective in reducing LDL cholesterol in insulin-treated diabetes patients.

Supriya Jindal, PhD

January 14, 2022 – Alirocumab safely and significantly reduced LDL cholesterol levels in insulin treated diabetes patients with high cardiovascular risk, in a phase 3b trial conducted in 10 countries.

Lawrence A. Leiter, MD, associate scientist at St. Michael's Hospital and professor at University of Toronto, in Toronto, Canada, and colleagues reported their findings in the December 19, 2017, issue of *Diabetes, Obesity and Metabolism*.

Several diabetes patients remain at high cardiovascular risk despite current standard of care involving statins in combination with ezetimibe. Alirocumab is a monoclonal antibody that acts as a proprotein convertase subtilisin/kexin type 9 (PCSK9) inhibitor. It is safe and effective in individuals with and without diabetes. However, concomitant administration of two injectable agents—insulin and alirocumab—has raised concerns. This study characterizes the efficacy and safety of alirocumab in insulin-treated people with type 1 (T1D) or type 2 (T2D) diabetes at high cardiovascular risk.

A total of 441 participants with T1D and 76 participants with T2D were randomized 2:1 to alirocumab: placebo, administered subcutaneously every 2 weeks for 24 weeks in a double-blind manner. All participants were insulin treated and had high cardiovascular risk with LDL cholesterol levels at least 1.8 mmol/L, despite maximum tolerated statin therapy. The starting dose of alirocumab's was 75 mg every 2 weeks, with blinded dose increase to 150 mg every 2 weeks at week 12, if LDL cholesterol levels were at least 1.8 mmol/L at week 8.

Primary efficacy end point was percentage change in calculated LDL cholesterol from baseline to week 24. Primary safety endpoints were assessed through treatment-emergent adverse event (TEAE) reports, product complaints, and vital signs.

When compared with patients who received placebo treatment, LDL cholesterol levels were reduced by 49% from baseline to week 24 in patients with T2D who received alirocumab, and by 47.8% in patients with T1D who received alirocumab ($P < .0001$ for both). The alirocumab group at week 24 showed less than 1.8 mmol/L LDL cholesterol levels in more than 70% of the T1D and T2D population ($P < .0001$ for both).

Alirocumab was generally well tolerated in the overall population. Percentage of individuals showing at least one TEAE, and those who discontinued the treatment due to TEAE was similar between alirocumab and placebo groups (64.5% vs 64.1%; 4.9% vs 2.4%). Glycated haemoglobin remained stable for the study duration.

"Alirocumab was shown to be superior in reducing LDL cholesterol levels vs placebo in insulin-treated individuals with T2D or T1D at high cardiovascular risk.," Dr Leiter and colleagues concluded. However, the study was limited in terms of short treatment period for assessing potential interactions between alirocumab and insulin, and of long-term effects of alirocumab on glycaemic control.

*This study was sponsored by Sanofi in collaboration with Regeneron Pharmaceuticals. A full list of disclosures is provided in the journal article.*

*Diabetes, Obesity and Metabolism*. Published on October 10, 2017.