

LDL-cholesterol reduction vs LDL target level: Which is more important?

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There is enough documented evidence of the role of low-density-lipoprotein cholesterol (LDL-C) in the pathogenesis of atherosclerotic cardiovascular disease (CVD).

Decreasing LDL-cholesterol levels leads

to significant reductions in the risk to develop CVD events. As a treatment modality, the use of statins has become the first-line treatment to reduce LDL-cholesterol and has been shown to have a favourable clinical benefit.

Many guidelines and clinical practice guides do recommend that specific LDL levels should be reached during treatment of elevated LDL levels. This represents the concept of target or goal LDL and in general, the higher the CV risk, the lower the LDL treatment target or goal that should be reached. Nevertheless, there are patients that fail to achieve these pre-set target levels.

The latest practice guideline from the US has done away with target or goal LDL levels and has replaced the concept of target levels with the intensity of statin therapy based on baseline risk.

In a large meta-analysis of 14 randomised clinical statin trials and 90 056 people, it was demonstrated that for each 1mmol/L

of LDL reduction with statins, there were significant reductions in CV endpoints such as 12% reduction in all-cause mortality, 19% reduction in coronary mortality, significant reductions of myocardial infarctions and the need for coronary revascularisations.

These types of data has led to the concept that patients who achieve very low levels of LDL cholesterol have a lower risk of major CV events.

What is not known is whether percent LDL cholesterol reduction achieved during treatment or whether LDL levels reached on treatment add incremental prognostic value to statin dose (concept of intensity of treatment).

A new study used data from three large clinical trials of statin therapy in patients with established atherosclerotic CVD. There were 13 937 patients from the three trials (TNT, IDEAL and SPARCL) and they were divided into groups based on attained LDL levels (<1.8mmol/L and >1.8mmol/L) and percent LDL reduction (<50% or >50%). The

primary endpoint was a combination of: Major CV events (coronary heart disease, non-fatal myocardial infarctions, cardiac arrest and stroke). Incremental prognostic value was assessed with a type of Cox proportional model.

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RESULTS

The percent LDL reductions added incremental prognostic value over both statin dose and attained LDL levels. Among patients with an attained LDL level of < 1.8 mmol/L those who had a percent LDL level reduction of less than 50% had less benefit than those who achieved >50% reduction in LDL cholesterol level.

CONCLUSIONS

- 1 In patients with atherosclerotic CVD, the percent LDL reduction had a better prognostic value than the dose of statin used or the target LDL level achieved.
- 2 This study suggests that more attention should be paid to the management of vascular risk factors in individuals who fail to achieve LDL reductions of less than 50%.
- 3 In the new American Blood Cholesterol Guidelines, it is stated that in high risk people for primary prevention, the LDL cholesterol levels should be reduced by at least 50%.

References available on request. **SF**

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