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THE STUDIES ASSESSING STATIN IN CORONARY ATHEROSCLEROSIS PLAQUE PROGRESSION

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Objectives to assess the effect of therapy with statins on plaques.

Methods searched eligible studies on PubMed, Embase databases and analysed them through Review Manager 5. The primary terminal point was the progression of plaque volume evaluated by intravascular ultrasound (IVUS). Weighted mean difference (WMD) was used as summary statistics for the results (continuous variables). Heterogeneity of the studies was analysed by Cochran's Q statistics. Sensitivity of the studies was analysed by stratified analysis according to the time of follow-up, the level of LDL-C and statins. All of biases of the studies were analysed by funnel plot.

Results This meta-analysis adopted 19 studies from 14 papers. The total number of patients was 2631 and the mean follow-up was 18.7 months. That found a significant regression in coronary atherosclerotic plaque volume (WMD -6.59 mm^3 , 95% CI $(-8.75 \text{ to } -4.43)$ $p < 0.00001$), with no significant heterogeneity across studies ($p = 0.78$). Stratified analysis: Time of the follow-up > 6 months (WMD -6.75 mm^3 , 95% CI $(-9.10 \text{ to } -4.40)$ $p < 0.00001$) presented a trend for plaque regression through the follow-up ≤ 6 months (WMD -5.74 mm^3 , 95% CI $(-11.20 \text{ to } -0.28)$ $p = 0.04$). Treatment with atorvastatin (WMD -6.83 mm^3 , 95% CI $(-11.68 \text{ to } -1.99)$ $p = 0.006$) showed a stronger regression than rosuvastatin (WMD -6.41 mm^3 , 95% CI $(-9.43 \text{ to } -3.40)$ $p < 0.0001$). At the end of follow-up, the LDL-C level on 80–100 mg/dl (WMD -8.88 mm^3 , 95% CI $(-12.96 \text{ to } -4.81)$ $p < 0.0001$) reveal the strongest trend for plaque regression among all of the three LDL levels, including $> 80 \text{ mg/dl}$ (-6.01 mm^3 , 95% CI $(-8.82 \text{ to } -3.21)$ $p < 0.0001$), 80–100 mg/dl and $< 100 \text{ mg/dl}$ (WMD -4.22 mm^3 , 95% CI $(-10.27 \text{ to } 1.82)$ $p = 0.017$). Plaque volume remained essentially unchanged in patients not treated with statins (WMD 0.13 mm^3 , 95% CI $(-4.42 \text{ to } 4.68)$ $p = 0.96$).

Conclusions statin therapy, particularly when achieving the LDL level on 80–100 mg/dl, appears to promote a significant regression of coronary plaque volume as measured by IVUS.