

Intensive prevention program after myocardial infarction: how can LDL cholesterol be reduced and how long are intensive prevention efforts needed?

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Background: Hypercholesterinaemia is a well-known risk factor in cardiovascular disease and guidelines recommend to lower LDL cholesterol levels in manifest coronary heart disease. Patient education leads to better drug compliance; however, until now prevention programs (such as EUROACTION or RESPONSE II) did not show significant effects on lipid levels.

Purpose: Aim of the study was to prove the effects of a modern intensive prevention program (IPP) for 12 months after acute myocardial infarction (MI) on lipid levels in a longtime view.

Methods: In the multicenter IPP trial patients with MI were randomized one month after discharge to IPP versus usual care (UC). IPP was coordinated by prevention assistants and included education sessions (≥ 1 /month), telemetric risk factor control, telephone visits and clinical visits to control and intervene, if risk factors did not meet the guideline-recommended targets. To optimize risk factors patients, their general practitioners and cardiologists were requested both orally and in writing to escalate prevention efforts and medication. The primary endpoint of the IPP trial was global risk factor control at the end of the prevention program at 12 months, last follow up was performed after 24 months.

The present sub-study analyzes interventions on lipid profile and effects after 6, 12 and 24 months in 282 patients of the Bremen cohort of the IPP trial.

Results: At randomization one month after discharge (97,5% after a 3-week cardiac rehabilitation programm) LDL cholesterol was $71,4 \pm 24,6$ mg/dl in the IPP group and $69,0 \pm 23,1$ mg/dl in the UC group (p 0,41).

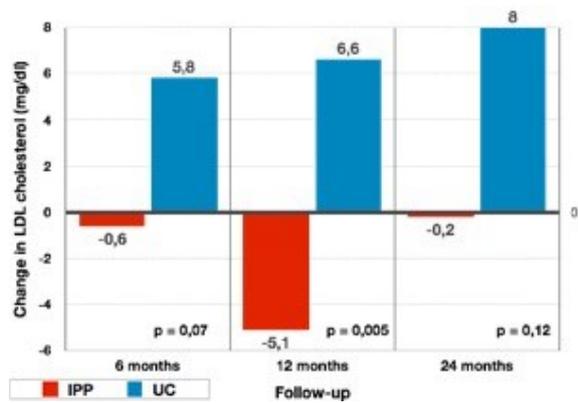
During the following 12 months adaption of statin therapy (increase of dose, change to more potent statin or combination with ezetimib) was advised in 57 patients of the IPP group (48,7%) due to elevated LDL cholesterol levels. This advice was followed in 74%.

A significant improvement in LDL cholesterol levels was observed in the IPP group compared to UC after 12 months (IPP: $66,3 \pm 19,9$ versus UC: $75,6 \pm 28,9$ mg/dl; p 0,005; Figure 1).

After termination of IPP at 12 months LDL cholesterol levels increased again at the 24 months visit reaching levels like at baseline (Figure 1). In the UC group a continuous increase could be observed with no significant difference between both groups after 24 months (IPP: $71,2 \pm 26,1$ versus UC: 77 ± 28 mg/dl; p 0,12).

Conclusion: An intensive prevention program after myocardial infarction leads to significant better LDL cholesterol levels. After termination of the program after 12 months LDL cholesterol levels increased again, indicating that even a 12 months prevention program is not long enough to achieve sustainable low LDL

cholesterol levels and longerlasting prevention is needed.



Change in LDL cholesterol levels