CARDIOVASCULAR DISORDERS—Clinical Outcomes Studies

THE ROLE OF LDL-LEVELS IN INITIATING STATIN TREATMENT
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OBJECTIVES: To assess the proportion of patients initiated on statin treatment among patients of various cardiovascular risk groups and the probability of statin treatment given certain LDL-levels in daily practice. METHODS: From the PHARMO-database, we selected patients who had an LDL-measurement in 2006 and no statin use in the year before. Per category of LDL-levels, i.e. ≤2.5, 2.6–4.0, 4.1–5.0 and >5.0 mmol/l, we determined the proportion of patients treated within 6 months after the measurement among those with cardiovascular disease (CVD, group I), with diabetes type 2 and no CVD (DM2, group II), and without CVD or DM2 (group III). The association between LDL-levels and statin treatment was determined using logistic regression adjusting for age, gender, CVD and DM2.

RESULTS: Group I included 14,267 patients, group II 9,224 patients, and group III 54,102 patients. Overall, the proportions of patients receiving statins within 6 months after LDL-measurement were 19% for group I and II and 8% for group III. These proportions ranged from 8%, 6% and 2% for patients with baseline LDL-levels ≤2.5 mmol/l, to 49%, 43% and 32% in patients with LDL-levels >5.0 mmol/l. Multivariate modelling showed that compared to patients with LDL ≤2.5 mmol/l (reference) the relative probability of statin treatment increased with LDL-levels: RR 2.6 (2.4–2.9) for 2.6–4.0 mmol/l, RR 5.8 (5.3–6.3) for 4.1–5.0 mmol/l, and RR 11.9 (10.9–13.1) for >5.0 mmol/l. Patients with CVD (RR 2.0 (1.9–2.1)) or DM2 (RR 2.5 (2.4–2.7)) were more likely to receive statin treatment.

CONCLUSIONS: This study shows that, as expected, among statin-naive patients the probability of statin treatment following LDL-measurement increased with higher LDL-levels and pre-existing morbidity. However, the potential to further improve health outcomes exists because, even among patients with known CVD or DM2, approximately 55% of patients with LDL levels >5.0 mmol/l did not receive statin treatment.

UNDERUSE OF STATINS AMONG HIGH RISK PATIENTS
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OBJECTIVES: It has been hypothesized that patients suffering from cardiovascular diseases (CVD) and diabetes type 2 (DM2) benefit most from treatment with statins. In this study, we determined the proportion and characteristics of patients who, despite recommendations in treatment guidelines, were not treated with statins. METHODS: Patients registered with a GP in the IPCI-PHARMO GP database at January 1, 2007 that had a history of CVD without DM2 (Group I) or DM2 without CVD (Group II) were selected. The proportion of patients using statins between July 2006 and June 2007 was determined among individual cohorts of patients suffering either from CVD (Group I) or DM2 (Group II). Factors associated with non-treatment with statins were identified and quantified using logistic regression modelling.

RESULTS: In our database we could identify and classify 19,623 CVD patients (Group I) and 5,007 DM2 patients (Group II). Of these patients, statins were not used by 71% of Group I members nor by 54% of Group II members. Multivariate modelling showed that low-socioeconomic status and younger age were significantly (p < 0.05) associated with under-treatment with statins, both among high risk patients suffering from either CVD or DM2. CONCLUSIONS: From this study we can conclude that a very large percentage of patients with established cardiovascular risk factors or diabetes where not treated with statins as recommended in treatment guidelines. Detailed analyses showed that younger patients and patients with a low-socioeconomic status were more likely to not be receiving statins.

COMPARISON OF GOAL ATTAINMENT RATES BETWEEN USERS OF SIMVASTATIN 40 MG AND OTHER STATINS
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OBJECTIVES: The use of simvastatin 40 mg is stated as the preferred statin treatment in the 2006 Dutch guideline for cardiovascular risk management. We studied whether this recommendation showed equal or better goal attainment rates in routine daily practice compared to patients treated with other statins. METHODS: Using the PHARMO data network we identified all patients starting statin use in the period 1999 through 2006. Patients suffering from cardiovascular disease or diabetes type 2 were classified as high risk. Treatment goals were defined according to the guidelines of the European Society of Cardiology (2003). Goals for total cholesterol (TC) and low density lipoprotein cholesterol (LDL-C) were <4.5 and <2.5 mmol/l for high risk patients and <5.0 and <3.0 mmol/l for low risk patients. Patients at goal at baseline were excluded. Goal attainment rates at 12 months were compared between simvastatin 40 mg and other statins and doses using logistic regression adjusting for age, gender, year of statin use, CVD, DM2, baseline LDL-C and adherence.

RESULTS: We identified 7356 new statin users of which 70% were categorised as being at high risk. Goal attainment rates were similar in the low and in high risk patient groups. Fifty-eight percent of patients treated with simvastatin 40 mg attained goal. Both atorvastatin 20 and 40 mg (RR 1.16 and 1.22) and rosuvastatin 10 and 20 mg (RR 1.18 and 1.51) yielded significantly higher goal attainment rates compared to patients treated with simvastatin 40 mg. CONCLUSIONS: Results from this study strongly suggest that even after correction of differences in dosing and baseline LDL-C levels, goal attainment rates were similar in the low and in high risk patient groups. Fifty-eight percent of patients treated with simvastatin 40 mg attained goal. Both atorvastatin 20 and 40 mg (RR 1.16 and 1.22) and rosuvastatin 10 and 20 mg (RR 1.18 and 1.51) yielded significantly higher goal attainment rates compared to patients treated with simvastatin 40 mg. CONCLUSIONS: Results from this study strongly suggest that even after correction of differences in dosing and baseline LDL-C levels, goal attainment rates are similar in the low and in high risk patient groups. Fifty-eight percent of patients treated with simvastatin 40 mg attained goal. Both atorvastatin 20 and 40 mg (RR 1.16 and 1.22) and rosuvastatin 10 and 20 mg (RR 1.18 and 1.51) yielded significantly higher goal attainment rates compared to patients treated with simvastatin 40 mg. Other studies suggest that these differences translate into reduced cardiovascular risk. This evidence from routine daily practice questions whether recommending simvastatin 40 mg is most beneficial to patients.