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Non-Interventional Study (NIS) Report Summary

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Statin Therapy REsults in the Real World Practice in the Czech Republic (STEP)

Study dates:	**First Subject In:** 1 February 2010 **Last Subject Last Visit:** 30 June 2010
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NIS REPORT SUMMARY

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According to the European Clinical Trials Directive and the Czech law a 'Non-Interventional Study' (NIS) is defined as a study where the medicinal product(s) is (are) prescribed in the usual manner in accordance with the terms of the marketing authorisation. The assignment of the patient to a particular therapeutic strategy is not decided in advance by a study protocol but falls within current practice and the prescription of the medicine is clearly separated from the decision to include the patient in the study. No additional diagnostic or monitoring procedures were applied to the patients and epidemiological methods were used for the analysis of collected data.

1. STUDY SITES

The study was conducted in the Czech Republic. 268 physicians attended the study. Their specialization was internal medicine, cardiology, lipidology and diabetology.

2. PUBLICATIONS

There are no publications at the moment.

3. STUDY DATES

First Subject In: 1 February 2010

Last Subject Last Visit: 30 June 2010

4. BACKGROUND AND RATIONALE

Cardiovascular diseases have high morbidity and mortality in the Czech Republic as well as in other developed countries. Ischaemic heart disease and ischaemic stroke are the leading causes of mortality. The best way how to decrease morbidity and mortality is to prevent them. Major contributors to the development of cardiovascular disease are dyslipidaemia, diabetes, hypertension, smoking and abdominal obesity.

Therefore lifestyle changes are crucial in the prevention of cardiovascular diseases. If lifestyle changes are not sufficient to reach the goal levels of total cholesterol and LDL-cholesterol the next step is pharmacological intervention.

Statins are the first choice treatment of dyslipidaemia, a major contributor to cardiovascular diseases. Statins also have enough evidence to demonstrate decrease of morbidity and mortality from cardiovascular diseases.

Even though statin therapy is effective treatment of dyslipidaemia not all patients reach the goal levels.

5. OBJECTIVES:

5.1 Primary objective

To estimate proportion of patients who achieved the LDL-C therapeutic goal for the particular risk category after at least one year of a statin therapy.

5.2 Main secondary objectives

To estimate proportion of patients who achieved the therapeutic goal (total cholesterol, HDL-C and TG levels) after at least one year of a statin therapy.

To describe dyslipidaemia treatment in the Czech Republic in patients who were prescribed a statin therapy.

6. METHODS:

6.1 Study design

This study is a retrospective epidemiological study looking into patients´ medical records kept by a hospital/institution/physician. Retrospective data for eligible patients were reviewed by participating investigators, physicians taking care of their patients, and recorded in the CRF. Only patients who had available primary variable data with at least one-year gap should have been included into the study. There were no scheduled visits for any patient participating in the study.

6.2 Patient population selection criteria

6.2.1 Inclusion criteria

For inclusion into this non-interventional study, subjects had to fulfil all of the following criteria:

1. Male or female aged 18 years or over
2. Documented statin therapy for at least 12 months

3. Available two LDL-C values: one at the beginning of statin therapy or at the time when patient comes to a specialist; and the other one at least after 12 months of treatment. The latter value should not be older than 6 months.

6.2.2 Exclusion criteria

None

7. CRITERIA FOR EVALUATION (MAIN VARIABLES)

7.1 Primary variable

Low-density lipoprotein cholesterol (LDL-C)

7.2 Other variables

Total Cholesterol (TC)

High-density lipoprotein cholesterol (HDL-C)

Triglycerides (TG)

Hypolipidaemic therapy

Other concomitant therapy

8. STATISTICAL METHODS

Study was analysed using statistical methods appropriate for epidemiological studies. These methods include mainly descriptive analyses and calculation of confidence intervals (CI) as measure of estimates precision. Formal statistical testing for confirmation or rejection of hypotheses was preformed only for exploratory purpose and statistical inference had no confirmatory value. The level of significance α=5% was used for testing and calculation of two-sided CI. The assumption of normal distribution of data was tested using Kolmogorov-Smirnov Test for normality. No imputation technique was applied to missing data. The software SAS®, version 9.1 (SAS Institute, Cary, NC, USA) was used for statistical analysis.

Different types of data were analysed descriptively as follows: Continuous variables (e.g.: age) were described by arithmetic mean, standard deviation (SD), minimum, maximum, median, lower and upper quartile and 95% CI (if appropriate). Absolute and relative (percentage) frequencies were calculated for categorical or binary variables (e.g.: statin used for therapy or achieving of the garget level of LDL-C).

The primary endpoint - proportion of patients achieving the target levels of LDL-C after at least 12 months of hypolipidaemic therapy - was calculated as percentage of all analysed patients. The 95% asymptotic confidence interval was calculated to show precision of the estimate.

The proportion of patients achieving the target levels of HDL-C, TC and triglycerides was analysed by the same method for all analyzed patients and (also for LDL-C) for different risk categories defined by the reason for the hypolipidaemic therapy. The proportion of patients in risk categories that achieved target levels was compared using Chi-Square Test.

LDL-C, HDL-C, TC and triglycerides were analysed as continuous variables as well. The absolute and relative changes after 12 month of therapy were analysed and tested using Wilcoxon Signed Test. Statin (including its doses) and other concomitant therapy used for hypolipidaemic therapy were analysed descriptively.

9. RESULTS

This non-interventional study was designed to describe hypolipidaemic treatment in real medical practice in the Czech Republic. The study has described proportion of patients who achieved the therapeutic goal (LDL-C, total cholesterol, HDL-C and TG levels) after at least one year of a statin therapy.

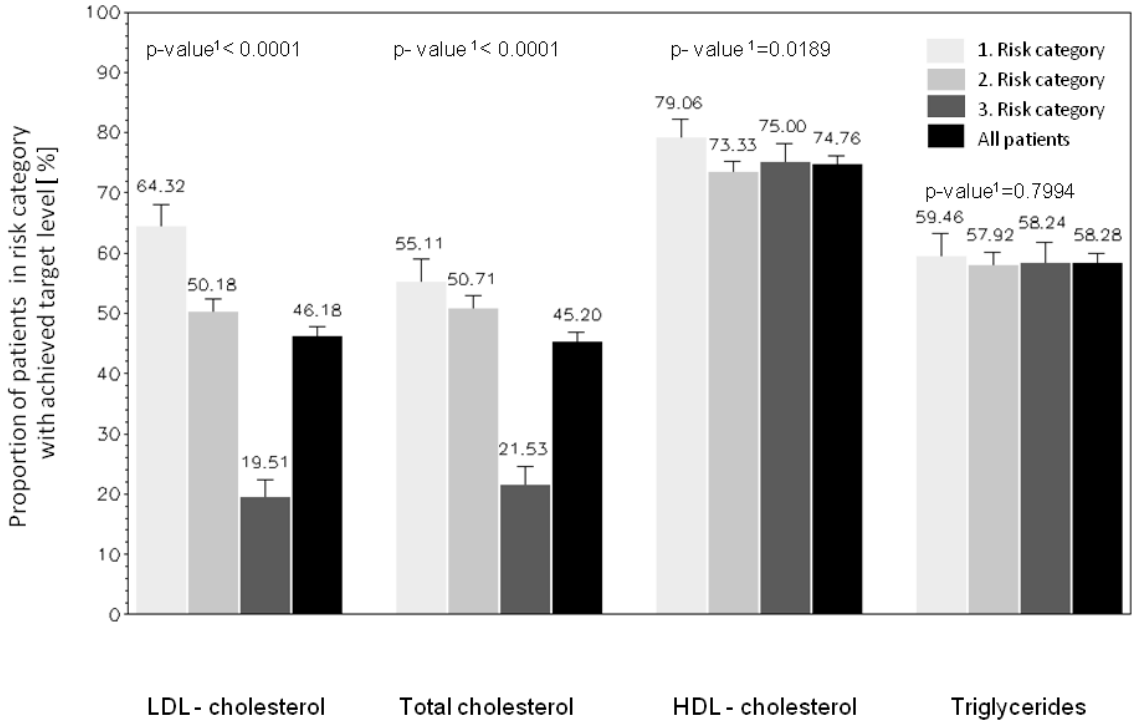
Definition of risk categories and corresponding target levels are described in Table1.

Table 1 Target levels of LDL-C, total cholesterol, HDL-C and TG

RISK CATEGORY	PATIENT POPULATION	PARAMETR	TARGET LEVEL
1.	General population	LDL-C	< 3 mmol/l
		TC	< 5 mmol/l
		HDL-C	> 1 mmol/l (men), > 1,2 mmol/l (women)
		TG	< 1,7 mmol/l
2.	Patients in very high risk, particularly patients with manifest atherosclerotic disease (e.g. post MI or stroke) and patients with diabetes	LDL-C	< 2,5 mmol/l
		TC	< 4,5 mmol/l
		HDL-C	> 1 mmol/l (men), > 1,2 mmol/l (women)
		TG	< 1,7 mmol/l
3.	Patients in extremely high risk (e.g. patient after MI who has diabetes)	LDL-C	< 2 mmol/l (recommended)
		TC	< 4 mmol/l (recommended)
		HDL-C	> 1 mmol/l (men), > 1,2 mmol/l (women)
		TG	< 1,7 mmol/l

Results of the study have shown that the therapeutic goal of LDL-C in the overall study population was reached in less than 50% patients. The percentage of patients in particular risk category who have achieved therapeutic goal levels of LDL-C were 64.32% for general population, 50.18% for high risk population and 19.51% for very high risk population (Figure 1).

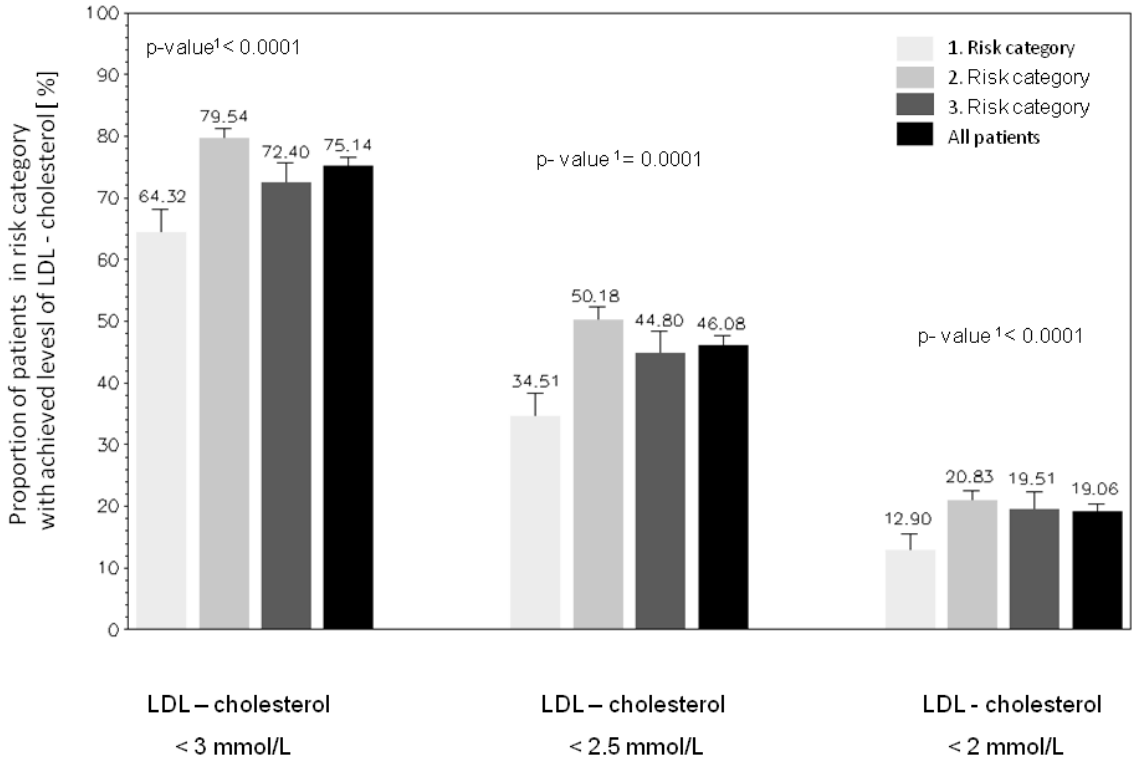
Figure 1 Proportion of patients who achieved target levels



Proportion of patients who achieved target levels of total cholesterol, HDL-C and triglycerides for particular risk category is shown in Figure 1.

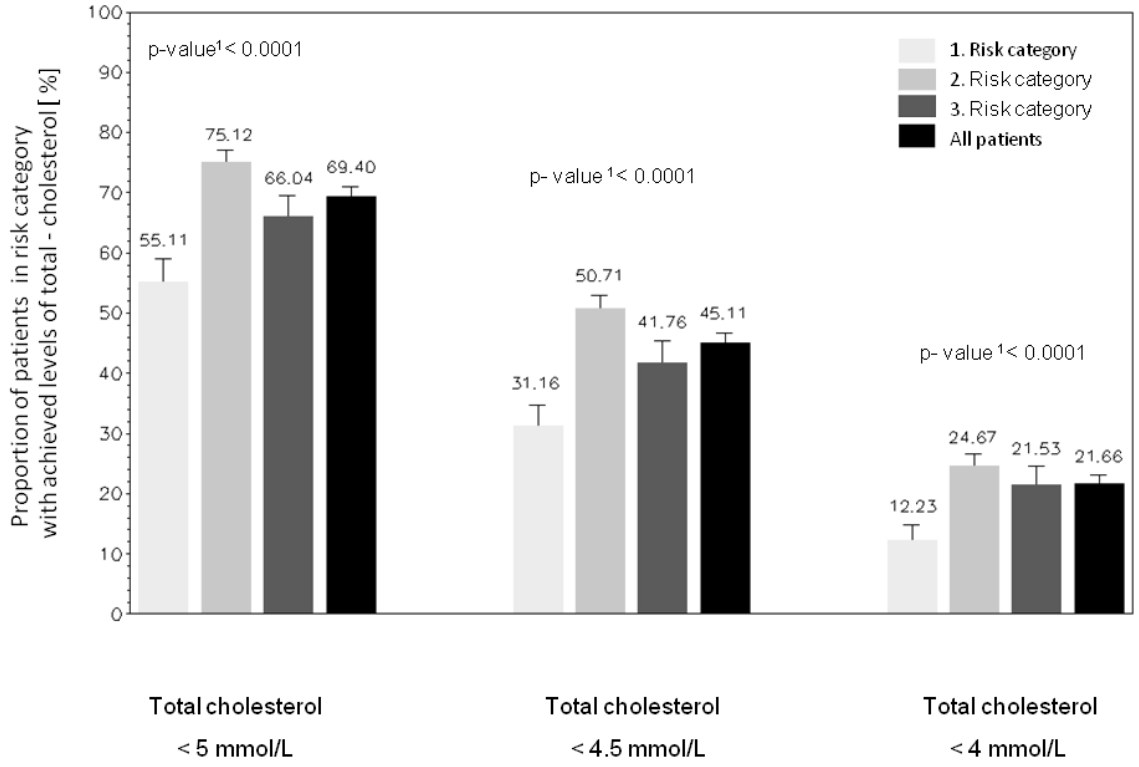
Proportion of patients who achieved LDL-C levels 3 mmol/l, 2.5 mmol/l and 2 mmol/l in particular risk category is shown in Figure 2.

Figure 2 **LDL-C: Proportion of patients who achieved levels 3 mmol/l, 2.5 mmol/l and 2 mmol/l**



Difference in percentage of patients achieving therapeutic goals have been observed for particular risk categories when assessing levels of total cholesterol after statin therapy, which lasted at least one year (Figure 3). On the other hand approximately the same percentage of patients has achieved the therapeutic goal for particular risk category when assessing HDL-C and triglycerides.

Figure 3 **Total cholesterol: Proportion of patients who achieved levels 5 mmol/l, 4.5 mmol/l and 4 mmol/l**



The study has further described differences among medical specialties in achieving recommended levels for LDL-C and total cholesterol. The study has described hypolipidaemic treatment on regional level in the Czech Republic.

9.1 Summary of results

- Number of patients that archive target LDL-C levels significantly differs between risk categories. The lower is the target level of LDL-C the lower is the probability that patients achieve their target levels.
- Number of patients that achieve target levels of total cholesterol in their risk category is significantly lower in extremely high risk group compared to high risk patients and general population.
- Approximately the same number of patients in particular risk categories achieves HDL-C and triglycerides target levels.
- The study has shown that there are differences between medical specialties and regions within the Czech Republic in achieving target levels.