Prevalence and Routine Care Treatment of Diabetes mellitus in Germany: Findings from the DETECT Study

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INTRODUCTION:

Cardiovascular disease accounts for more than two thirds of the deaths in patients with type 2 diabetes (DM) and three fourth of these deaths result from ischemic heart disease. Type 2 diabetes increases the risk two to three times in men and three to seven times in women. Yet, only a fraction of the patients needing therapy seem to be recognized and receive adequate antidiabetic and lipid-lowering treatment.

The epidemiological study **DETECT (*Di*abetes Cardiovascular Risk *E*valuation: *T*argets and *E*ssential Data for *C*ommitment of *T*reatment)** was launched to identify the reasons, the extent and the short-term consequences of unmet needs in patients with high cardiovascular risk. Aims of the study were to assess (a) the frequency, characteristics and severity of coronary heart disease, arterial hypertension, diabetes mellitus, lipid disorders and selected comorbidities, (b) the proportion of patients with high-risk (c) rates of General Practitioner´s recognition, diagnoses and therapy, (d) quality of care (e) indicators of undertreatment, or over-treatment, respectively, and (e) to evaluate current laboratory measures.

Here, we report on the findings from a subset of approximately 7500 patients characterized by an extensive standardized laboratory program with focus on the treatment modalities in patients with type 2 diabetes mellitus.

METHODS:

Study design:

DETECT is a large multistage cross-sectional and prospective 12-month study in over 3000 primary care offices, nationwide. In stage 1, a mailed questionnaire survey of physicians (n = 3,572) and settings was performed to assess physicians´ awareness, attitudes, and practice patterns concerning coronary heart disease, arterial hypertension, diabetes mellitus, lipid disorders etc. In stage 2, a cross sectional study of consecutive patients (n = 70,000 patients) in these primary care settings was completed using standardized questionnaires for physicians and patients. In stage 3, a subset of 7,500 patients characterized by an extensive standardized laboratory program, are being followed up over 12 months to evaluate the change of selected laboratory measures and critical outcomes such as death, cardiovascular events or hospitalisation.

Patients:

Type 2 diabetes was assessed according to the guidelines of the American Diabetes Association (ADA): fasting glucose > 126 mg/dl, no caloric intake for at least 8 h or clinical history.

Laboratory measurements:

Glucose, Cholesterol and triglycerides were measured using enzymatic methods and reagents from Roche Diagnostics (Mannheim, Germany). The measurements were calibrated using secondary standards for automated analysers (Roche Diagnostics). LDL and HDL cholesterol were determined by quantitative agarose gel electrophoresis (Helena, Germany). HbA1c was determined using enzymatic reagents from Menarini Diagnostics (Firenze, Italy).

RESULTS:

According to the guidelines of the ADA 1477 (19,7 %) out of 7504 patients were identified as diabetic. DM was more frequent in men (32,5 %) than in women (16,3 %). The prevalence of DM increased with advancing age of the patients (Figure 1). DM was most frequent in the age of 70 to 79 years.

Figure 1
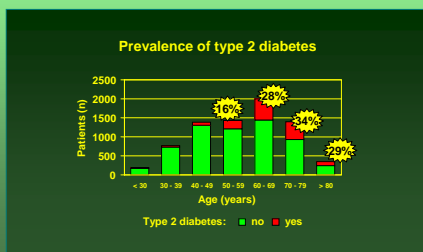
Prevalence of type 2 diabetes

RESULTS:

Surprisingly, only 62 % of the diabetic patients were previously recognized by the physicians, more than one third was newly identified by our screening program. Even in patients with advanced age (> 60 years) the amount of newly identified diabetics was 38 %.

There were no significant difference in the concentrations of LDL cholesterol between patients with type 2 diabetes and controls (only patients without lipid-lowering therapy). Triglycerides were significantly higher in diabetic patients, whereas HDL cholesterol was significantly lower (Table 1).

Table 1: Lipid and glucose concentrations in patients with type 2 diabetes and without lipid-lowering therapy

	Type 2 diabetes		
	yes (n = 1007)	no (n = 5151)	*P*
Total cholesterol (mg/dL)	221 ± 42	224 ± 42	0,032
Triglyceride (mg/dL)	179 ± 120	138 ± 98	< 0,001
LDL cholesterol (mg/dL)	127 ± 32	128 ± 34	n.s.
HDL cholesterol (mg/dL)	52 ± 18	59 ± 20	< 0,001

Values are means and standard deviation; n.s. = not significant

Only 70 % of the known patients with DM received antidiabetic medication (34,2 % metformin, 16,7 % insulin, 9,5 % sulfonylurea, 9,6 % others) and about one third was treated with lipid-lowering medication (26,8 % statins, 4,5 % fibrates, 1,9 % others). Approximately 24 % received a combination of lipid-lowering and anti-diabetic drugs (Table 2).

Table 2: Anti-diabetic and lipid-lowering drugs in patients with known type 2 diabetes

	known type 2 diabetes	
	(n)	(%)
Anti-diabetic drugs	416	45,3
Lipid-lowering drugs	81	8,8
Combination (anti-diabetic and lipid-lowering drugs)	223	24,3
no medication	199	21,7
Total	919	100

The majority of the diabetics did not achieve the treatment goals for fasting glucose (65 %), HbA1c (32 %), LDL cholesterol (76 %), and triglycerides (56 %). Treatment goals were: fasting glucose < 126 mg/dL, HbA1c < 7 %, LDL cholesterol < 100 mg/dL, and triglycerides < 150 mg/dL.

Figure 2:

How many patients achieved treatment goals?

CONCLUSION:

Our results indicate that a significant proportion of the diabetic patients were not recognized by the physicians and the treatment of DM was often insufficient. Patients with DM are at high risk for CHD. However, mainly lipid-lowering therapy in these patients was inadequate.

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