

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

Steffen Böhler¹, David Pittrow¹, Heide Glaesmer², Jens Klotsche², Isabell Hach¹, Wolfgang Böcking¹, Wilhelm Kirch¹, Hubert Scharnagel³, Winfried Maerz³, Günther Ruf⁴, Hans-Ulrich Wittchen², Günter Stalla⁵, Hendrik Lehner⁶.

¹Institute of Clinical Pharmacology, Technical University Dresden, Germany; ²Institute of Clinical Psychology and Psychotherapy, Technical University Dresden; Germany; ³Institute of Chemical and Medical Laboratory Diagnostics, Medical University Graz, Austria; ⁴Pfizer GmbH, Germany; ⁵Department of Endocrinology, Max-Planck Institute of Psychiatry, Munich, Germany; ⁶Clinic for Endocrinology and Metabolic Disorders, University of Magdeburg, Germany



Background

Cardiovascular diseases account for more than two thirds of the deaths in patients with type 2 diabetes mellitus (DM). Three fourths of these deaths result from ischemic heart disease. Type 2 DM increases coronary heart disease risk two to three times in men and three to seven times in women. Yet, only a fraction of patients needing therapy seems to be recognized and receives adequate antidiabetic and lipid-lowering treatment¹⁻⁶.

Aims

The epidemiological study DETECT⁷ (Diabetes-Cardiovascular Risk Evaluation: Targets and Essential Data for Commitment of Treatment) was launched to identify the reasons, the extent and the short-term consequences of unmet needs in patients at high cardiovascular risk (especially DM patients), using a representative sample of primary care offices in Germany. This evaluation of our dataset focused on the frequency of DM, detection rates of clinicians, as well as the extent and quality of treatment and prescribed medications in primary care.

Methods

Design:

DETECT is a large multistage cross-sectional study of 55.518 unselected consecutive patients in 3.188 primary care offices in Germany. In a prospective 12-month component, 7.519 patients of a random subset underwent an additional standardized laboratory program with focus on cardiovascular risk assessments. Patients' self-assessments and physicians' assessments of each patient were obtained. The data reported are based exclusively on the laboratory subset of patients and are not yet adjusted for non-response and sampling design effects. Further details are available under <http://www.detect-studie.de>. A more detailed description of the study design can be found on poster no. 28 titled: 'Combined Hypertension and Dyslipidemia in Germany'.

Diabetes:

Blood samples for the measurement of fasting plasma glucose were taken and the diagnosis DM was given according to the guidelines of the American Diabetes Association (ADA; fasting plasma glucose ≥ 126 mg/dl, no caloric intake for at least 8 h) or clinical history (physician's diagnosis or being on antidiabetic medication).

Lipids and lipoproteins:

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

Results

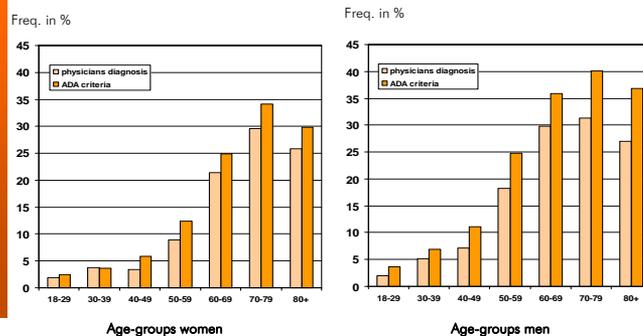
In 7.376 out of 7.519 patients analysis of HbA1c, fasting plasma glucose and lipoproteins were performed (see Table 1).

17,6% of the patients in the lab subsample were identified as diabetics (4,8% Type 1; 95,2% Type 2) by the treating physicians. The occurrence of DM increased with advancing age of the patients (36,7% at the age of 70 to 79 years; see figure 1). According to the guidelines of the ADA (fasting plasma glucose ≥ 126 mg/dl, no caloric intake for at least 8 h) or clinical history (physician's diagnosis or being on antidiabetic medication), 21,7% of the patients were identified as diabetics. DM was more frequent in men (27,4%) than in women (17,7%).

Table 1: Demographic characteristics

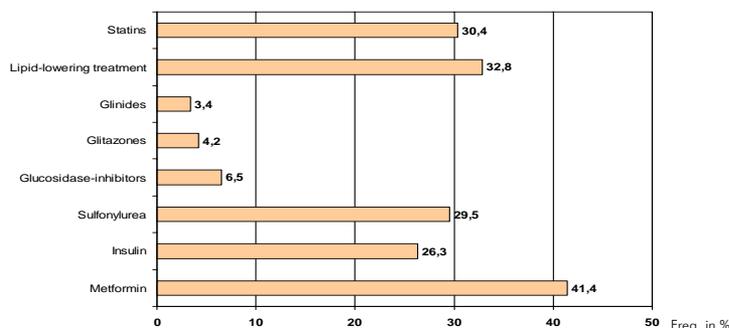
	N=7.519
Sex: male	3.081 (41%)
female	4.438 (59%)
Mean Age	57,7 years
Mean Body Mass Index [kg/m ²]	27,2 kg/m ²
Overweight (BMI 25-29,99) / Obesity (BMI ≥ 30) [%]	39,2% / 25,5%
Mean HbA1c [%]	5,6%
Current Smoker [%]	21%
Mean Systolic blood pressure [mmHg]	132,7 mmHg
Mean Diastolic blood pressure [mmHg]	80,2 mmHg
Mean Total-cholesterin [mg/dl]	223,3 mg/dl
Mean HDL-cholesterin [mg/dl]	54,4 mg/dl
Mean LDL-cholesterin [mg/dl]	127,5 mg/dl
Mean Triglycerides [mg/dl]	154,4 mg/dl

Figure 1: Frequency of clinician and lab-defined (ADA) diabetes mellitus by age and gender in %



Only 81% of the diabetic patients were previously recognized by their physicians, 19% were newly identified by our screening program. Only about three quarters (72,7%) of the known patients with DM received antidiabetic medication (41,4% metformin, 26,3% insulin, 29,5% sulfonylurea, 6,5% glucosidase-inhibitors, 4,2% glitazones, and 3,4% glinides). About one third of the diabetic patients (32,8%) was treated with lipid-lowering medication, mainly with statins (30,4%; see figure 2).

Figure 2: Prescription rates for antidiabetic and lipidlowering drugs



The majority of the diabetics did not meet the ADA treatment goals for fasting glucose (53,9%), HbA1c (35,1%), LDL-cholesterol (75,9%), triglycerides (54,9%) and blood pressure (87,3%).

Summary

According to the criteria of the ADA 21,7% of the sample was identified to be diabetic. DM was more frequent in men (27,4%) than in women (17,7%). The occurrence of DM increased with advancing age of the patients (36,7% in the age group of 70 to 79 years). Surprisingly, only 81% of the diabetic patients were previously recognized by the physicians, approximately 20% were newly identified by our screening program.

About two thirds of these patients received antidiabetic medication, approximately a third received lipid-lowering therapy mainly with statins. The majority of the diabetic patients did not meet the ADA treatment goals for plasma glucose (>50%), lipids (LDL-C>75%) and blood pressure (>85%).

Epidemiological data from national health registries in Germany estimate the prevalence of DM in the general population to be 5-8%⁸⁻¹¹. As expected the prevalence in a primary care sample is higher. In another cross-sectional German study the prevalence of diabetes was 15,6% based on physician's diagnoses¹². The combination of measuring fasting plasma glucose and using the 2-hour oral glucose tolerance test, as recommended by the WHO and the IDF, would most likely result in even higher rates for DM¹³.

The presented results indicate that a significant proportion of 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. Lipid-lowering therapy however, was inadequate in these patients.