

Prevalence of Obesity and its Importance to Cardiovascular Diseases in Germany: Findings from the DETECT Study

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INTRODUCTION:

Obesity is a chronic disease with an increasing risk for morbidity and mortality. Abdominal obesity becomes more important as a risk factor for cardiovascular diseases. The epidemiological study **DETECT (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 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 7.500 patients characterized by an extensive standardized laboratory program with focus on obesity in patients with coronary heart disease (CHD), type 2 diabetes mellitus (T2D) and metabolic syndrome (MS).

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 = 55.000 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, were followed up over 12 months to evaluate the change of selected laboratory measures and critical outcomes such as death, cardiovascular events or hospitalisation.

Patients:

The body mass index (BMI) was classified as following: BMI ≥ 30 kg/m² for obesity, BMI 25-30 kg/m² for overweight and BMI < 25 kg/m² for normal weight. MS was determined according to the National Cholesterol Education Program (NCEP) ATP III guidelines. T2D 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 BioSciences, United Kingdom).

RESULTS:

The study group consisted of 7519 patients. Baseline characteristics of these patients are shown in Table 1. The frequencies of CHD, T2D and MS were 13.6%, 19.7% and 37.6%, respectively.

Table 1: Baseline characteristics of patients

| | Females 4438 (59 %) | Males 3081 (41 %) |
|------------------------------------|------------------------|----------------------|
| Age, years | 58 | 61 \pm 13 |
| Smoker | 19.0 | 21.7 |
| Weight, kg | 72 | 86 |
| Waist circumference, cm | 90 | 102 |
| Body mass index, kg/m ² | 26.7 | 27.7 |

CONCLUSION:

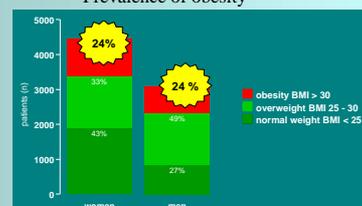
Our results indicate the importance of obesity to coronary heart disease. Obesity is significantly associated with cardiovascular risk factors such as hyperlipidemia, hypertension, diabetes mellitus and inflammation.

DETECT (Diabetes Cardiovascular Risk Evaluation: Targets and Essential Data for Commitment of Treatment) is a cross-sectional and prospective-longitudinal, nationwide clinical epidemiological study. *Principal investigator:* Prof. Dr. H.-U. Wittchen (Dresden/Munich); *Staff members:* Dipl.-Psych. L. Pieper, Dipl.-Math. J. Klotsche, Dr. H. Glaesmer, E. Katze, Dipl.-Psych. A. Bayer, Dipl.-Psych. A. Neumann. *Steering Committee:* Prof. Dr. H. Lehnert (Magdeburg), Prof. Dr. G. K. Stalla (Munich), Prof. Dr. M. A. Zeiher (Frankfurt); *Advisory Board:* Prof. Dr. W. März (Graz), Prof. Dr. S. Silber (Munich), Prof. Dr. U. Koch (Hamburg), PD Dr. D. Pittrow (Munich/Dresden). DETECT is supported by an unrestricted educational grant of Pfizer GmbH, Karlsruhe, Germany.

RESULTS:

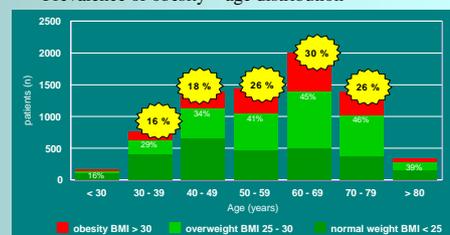
Almost one quarter of the patients were obese (BMI ≥ 30 kg/m²). Overweight (BMI 25-30 kg/m²) was most frequent in male patients (49 %) whereas the majority of women (43 %) had normal weight (BMI < 25 kg/m²) (Figure 1).

Figure 1: Prevalence of obesity



The prevalence of obesity was most frequent in the population ranged from 60-69 years (Figure 2).

Figure 2: Prevalence of obesity – age distribution



T2D, MS and hypertension were more prevalent in patients with obesity than in normal or overweight subjects (Table 2). But CHD was more prevalent in overweight patients compared with obese and normal weight subjects.

Table 2: Prevalence of coronary heart disease, diabetes mellitus and hypertension

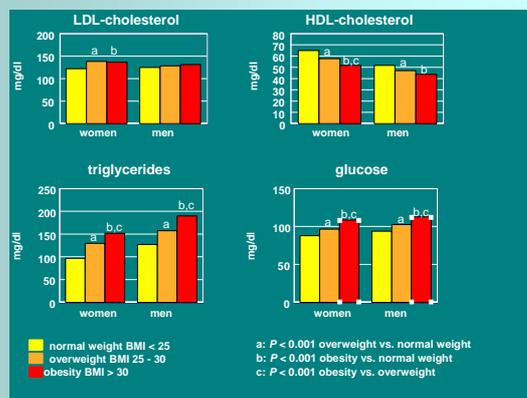
| | Total n = 2720 * | Normal weight n = 976 * | Overweight n = 1057 * | Obesity n = 687 * |
|-------------------------------|---------------------|----------------------------|--------------------------|----------------------|
| CHD (%) | 14.4 | 10.4 | 17.5 | 15.4 |
| Hypertension (%) [‡] | 63.9 | 43.8 | 70.4 | 82.5 |
| MS w/o DM (%) | 21.0 | 8.0 | 24.1 | 34.8 |
| T2D (%) | 21.4 | 9.7 | 21.1 | 38.2 |

* patients with at least 14 hours fasting state

[‡] hypertension: SBP > 140 mmHg or DBP > 80 mmHg

Obese patients had significantly higher LDL-C (131 and 123 mg/dl, respectively) and triglycerides (180 and 113 mg/dl, respectively) but lower HDL-C (51 and 64 mg/dl, respectively) compared with normal weight subjects (Figure 3). Fasting glucose was also significantly increased in obese compared with normal weight patients.

Figure 3:



In addition, mean values of C-reactive protein were significantly higher in obese compared with overweight and normal weight patients (6.5, 4.4 and 3.5 mg/dl, respectively).