Combined Hypertension and Dyslipidemia in Germany

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DETECT
Der Gesundheit auf der Spur

Background

The tremendous mortality due to cardiovascular disease (CVD) can largely be attributed to the combination of highly prevalent, modifiable, and partly interrelated risk factors, which include hypertension (HTN), dyslipidemia (DYS), smoking, obesity, and a sedentary lifestyle. Clustering of cardiovascular (CV) risk factors has repeatedly been observed in population studies. Individuals with elevated cholesterol levels have a higher than expected prevalence of HTN and vice versa. A recent analysis in a managed care population demonstrated the co-occurrence of HTN, DYS, and diabetes mellitus (DM) in patients, suggesting that disease management programs should use a combined rather than an individual approach to reduce CV risk factors.

Aims

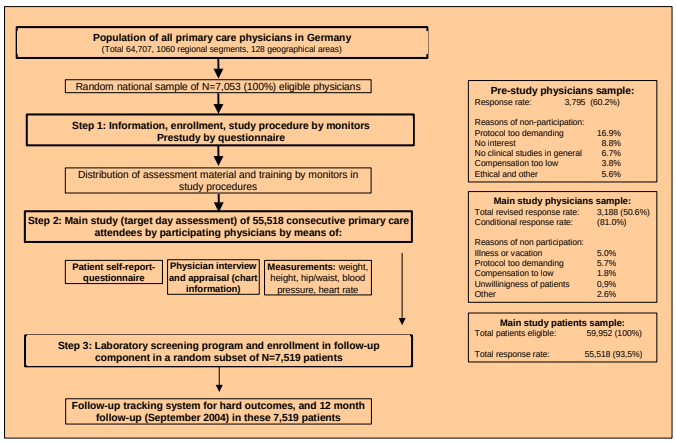
The epidemiological study DETECT[6] (*D*iabetes-Cardiovascular Risk *E*valuation: *T*argets and *E*ssential Data for *C*ommitment of *T*reatment) was launched to identify the reasons, the extent and the short-term consequences of unmet needs in patients with high CV risk in a representative sample in primary care in Germany. This evaluation focused on the frequency of hypertension and dyslipidemia and their co-occurrence, the extent and quality of treatment and prescribed medications.

Methods

Design:

DETECT is a large multistage cross-sectional study of 55.518 unselected consecutive patients (59% women and 41% men; over 18 years, mean age 53.9 years) in 3.188 primary care offices in Germany (73% general medicine and 27% internal medicine) with a prospective 12-month component in a random subset of 7.519 patients, characterized additionally by an extensive standardized laboratory program with focus on CV 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 to non-response and sampling design effects. Further details are available at http://www.detect-studie.de.

Figure 1: Design and sample of the DETECT-study



Blood pressure measurements, CHD risk categories, HTN and DYS definition:

Blood pressure measurements were performed according to the guidelines of the German Hypertension Society, HTN was determined, according to the guidelines of the JNC 7, as blood pressure values ≥ 140/90 mmHg or being on antihypertensive medication. CHD risk categories and subsequent LDL-C goals were determined according to the National Cholesterol Education Program (NCEP) ATP III Guidelines. Ten-year risk was calculated according to the Framingham risk score. DYS was determined as LDL-C levels > as required for risk category 1-3.

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 of step 3 lipid and lipoprotein analysis were performed. Table 1 summarizes the demographic characteristics.

Table 1: Demographic characteristics

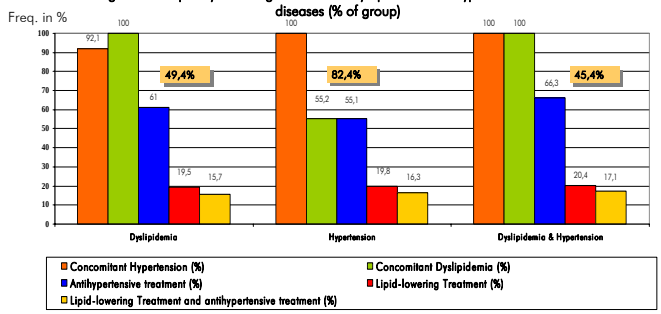
	Total N=7.519
Sex: male [%]	3.081 (41%)
female [%]	4.438 (59%)
Mean Age [years]	57,7 years
Mean Body Mass Index [kg/m²]	27,2 kg/m²
Overweight (BMI 25-29,99) / Obesity (BMI ≥ 30) [%]	39,2% / 25,5%
Mean HbA1C [%]	5,6%

Current Smoker [%]	21%
Mean systolic blood pressure [mmHg]	132,7 mmHg
Mean diastolic blood pressure [mmHg]	80,2 mmHg
Mean total-cholesterin[1] [mg/dl]	223,3 mg/dl
Mean HDL-cholesterin[1] [mg/dl]	54,4 mg/dl
Mean LDL-cholesterin [mg/dl]	127,5 mg/dl
Mean triglycerides [mg/dl]	154,4 mg/dl

[1] valid observations on total cholesterol and HDL-cholesterol N=7.376

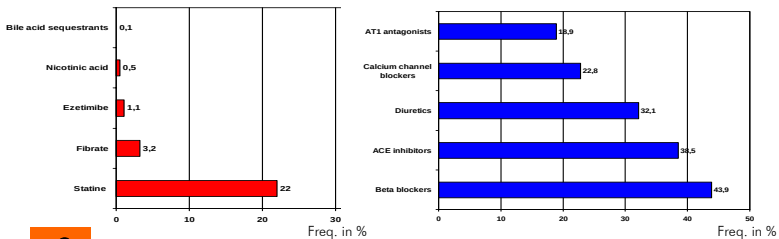
According to the NCEP ATP III guidelines 49,4% of the patients in the lab subsample were identified as dyslipidemic, the treatment rate with lipid-lowering medication in this group was 19,5%. According to the JNC 7 guidelines 82,4% of the patients in the lab subsample were diagnosed as hypertensive, however, just 55,1% received at least one antihypertensive drug. 55,2% of the hypertensive patients were additionally classified as dyslipidemic, vice versa 92,1% of the dyslipidemic patients have been classified as hypertensive. 45,4% of all patients in the lab subsample were both, hypertensive and dyslipidemic. 66,3% of these patients were treated with at least one antihypertensive agent, and 20,4% with at least one lipid-lowering compound. 17,1% were treated with both (see Figure 2).

Figure 2: Frequency and drug treatment of dyslipidemia and hypertension an both diseases (% of group)



In patients with both diseases the most frequently used antihypertensive drug classes were beta blockers (43,9%), followed by ACE inhibitors (38,5%), diuretics (32,1%), calcium channel blockers (22,8%), and AT1 receptor blockers (18,9%). The most frequently used lipid lowering drug classes were statins (22,0%), followed by fibrates (3,2%), ezetimibe (1,1%), nicotin acid derivates (0,5%), and bile acid sequestrants (0,1%) (see Figure 3).

Figure 3: Lipid-lowering and antihypertensive drug classes in patients with both diseases (%)



Summary

The frequencies of HTN, DYS and both diseases in combination as defined by the NCEP ATP III and the JNC 7 guidelines in a primary care sample were 82,4%, 49,4 %, and 45,4 % respectively. 55,1% of the hypertensive patients and only 19,5% of the dyslipidemic patients were treated with antihypertensive or lipid-lowering drugs. Treatment rates in patients with both diseases were only slightly better. In this group 66,3% of the patients were treated with antihypertensive drugs and 20,4% with lipid-lowering drugs. Only 17,1% were treated with both drug classes.

Our results indicate that a significant proportion of patients in primary care are both hypertensive and dyslipidemic and thus at increased risk for CV events. However, antihypertensive and lipid-lowering therapy in this group of patients seems to be not optimal, clearly indicating the need of concerted efforts to lower both, blood pressure and blood lipids in primary care.

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