CLASSICAL RISK FACTORS FOR MYOCARDIAL INFARCTION AND TOTAL MORTALITY IN THE COMMUNITY - 13-YEAR FOLLOW-UP OF THE MONICA AUGSBURG COHORT STUDY

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Introduction: The MONICA (MONItoring of trends and determinants in CArdiovascular disease) project in the region of Augsburg, Southern Germany, is the first population-based cohort study in Germany investigating the association of the risk factors hypertension, hypercholesterolaemia and smoking with incident myocardial infarction and total mortality, and to assess their impact at the population level.

Methods: At baseline, 1074 men and 1013 women aged 45-64 years were randomly selected from the population in the Augsburg region and extensively interviewed and examined regarding their cardiovascular risk profile. They were traced over 13 years from 1984-1997. We calculated incidence rates, hazard rate ratios, population attributable risks (PAR), and rate advancement periods (RAP) according to the three risk factors and their combinations.

Results: Among men, 107 myocardial infarctions and 204 total mortality events occurred during the study period; in women the number of total mortality cases was 102. The three classical risk factors were associated with incident myocardial infarction in men and with total mortality in men and women over a period of 13 years. Heavily smoking men had a particularly high risk of total mortality (HRR=4.2; 95% CI 2.5-7.0) and myocardial infarction (HRR=3.8; 1.9-7.6). Men with treated hypertension were at equally high risk for both total mortality (HRR=2.4; 1.3-4.3) and myocardial infarction (HRR=2.4; 1.3-4.3). In women, treated hypertension (HRR=2.3; 1.5-4.1) and hypercholesterolaemia (HRR=2.1; 1.1-3.9) were most strongly related to total mortality. Regarding the association of risk factor combinations and myocardial infarction among men, the presence of all three risk factors (HRR=1.5; 1.1-1.9) and hypercholesterolaemia and heavy smoking (HRR=1.7; 1.1-2.6) were much stronger related to total mortality. Regarding the association of risk factor combinations and myocardial infarction among men, the presence of all three risk factors (HRR=1.5; 1.1-1.9) and hypercholesterolaemia and heavy smoking (HRR=1.7; 1.1-2.6) were much stronger related to total mortality.

Conclusions: Our results confirm the outstanding impact of the classical risk factors on myocardial infarction and total mortality in a southern German population. Coronary heart disease is largely preventable through risk factor reduction. Therefore, risk factor counselling, education and treatment are crucial to prevent people from developing the disease or dying prematurely.
Introduction: Stroke is the third leading cause of mortality and the leading cause of disability in most western countries. The success of any hypertensive treatment crucially depends on its early application. In-hospital delays of patients with stroke should therefore map underlying factors of effective treatment. The objective of this study was to determine the interval between hospital admission and fibrinogen (fasting enzymatic Triage (CT/FAST) and plasma thromboplastin generation (MTHI)) and its underlying factors in patients with acute stroke.

Methods: From September 2005 to August 2006 consecutive patients with symptoms of an acute stroke were prospectively identified in 4 major hospitals (2 academic, 2 general) located in the inner district of Berlin population 3,953,000. Data were collected six standardized interviews with patients and their relatives, emergency department documentation, medical records and imaging. An hospital interval was defined as the time from hospital admission to CTFAST or MTHI. The dependent variable was the time interval from hospital admission to CTFAST. For multivariate analyses of time delay Cox proportional hazard model was used.

Results: A total of 359 patients (46% female, mean age 66 ± 13.5 years) with confirmed stroke was included in the study. The median interval between hospital admission and CTFAST was 111 min (range 1-1,688). Multivariable analysis showed that an increasing i.e. more severe initial NIH-stroke scale score (HR=1.08, 95% CI 1.04-1.12), primary health insurance (HR=0.89, 95% CI 0.73-1.07), admission at weekend (HR=1.35, 95% CI 1.08-1.67) and a pre-hospital delay shorter than 2 hours (HR=0.67, 95% CI 0.51-0.88) was associated with a significantly increased in-hospital time interval.

Conclusions: In-hospital delays of patients with acute stroke are associated with factors that correlate with clinical needs (severity of symptoms) but also with sociodemographic details and structural factors (day of admission). Considering the temporal urgency of therapeutic measures in acute stroke there is considerable room for improvement of time management in these patients.

**Introduction:** Since 1992 the significant decrease in cardiovascular mortality in Poland has been observed. However, nearly 25% of population in 2001 represented high risk of cardiovascular disease. It was higher for men in any age group. In each age men group, JNC VI produced substantially more eligibles (age standardized; men: 40%, women: 30%) than the WHO/ISH (m 34%, w 25%) and BHS guidelines (29%, w 19%). The predicted 5-year CVD risk was on average lower for JNC VI than for WHO/ISH or BHS eligibles, particularly among the younger. Exagated to the respective age range in the Federal Republic of Germany, JNC VI recommendations implied an additional treatment of about 4 million men over and above the 9 million men and women already eligible for treatment following the recommendations of the BHS.

**Conclusion:** Our cross-sectional evaluation shows that the three most commonly used guidelines for the management of hypertension lead to important differences in the number of people in the general population who are deemed eligible for antihypertensive treatment. As the treatment of hypertension is often life long, eligibility criteria thus have direct economic implications in terms of the total cost of primary prevention. Future guidelines lines need to explicitly assess, present and discuss these public health and economic implications.

**Introduction:** Changes in cardiovascular risk in the urban population of Poland 10 years observation within the CINDI study programme. In-hospital delays of patients with acute stroke are associated with factors that correlate with clinical needs (severity of symptoms) but also with sociodemographic details and structural factors (day of admission). Considering the temporal urgency of therapeutic measures in acute stroke there is considerable room for improvement of time management in these patients.

**Methods and results:** Multilevel regression analyses we quantified the extent to which individual differences in systolic blood pressure (SBP) could be attributed to population level factors. We also investigated a possible interaction between the population in which the person lived, and their individual blood pressure level. Individual SBP level was obtained from the participants in the WHO MONICA Project in 1997. It was lower for men in any age group. In each age men group, JNC VI produced substantially more eligibles (age standardized; men: 40%, women: 30%) than the WHO/ISH (m 34%, w 25%) and BHS guidelines (29%, w 19%). The predicted 5-year CVD risk was on average lower for JNC VI than for WHO/ISH or BHS eligibles, particularly among the younger. Exagated to the respective age range in the Federal Republic of Germany, JNC VI recommendations implied an additional treatment of about 4 million men over and above the 9 million men and women already eligible for treatment following the recommendations of the BHS.

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**Population effects on individual systolic blood pressure: a multilevel analysis of the WHO MONICA project.**

**Background:** Individuals from the same population share a number of socioeconomic, health care system, genetic and life-style factors that may condition a common level of blood pressure over and above individual characteristics. Understanding the biological and environmental factors that contribute to the population effect is relevant for both etiological research and strategies of prevention.

**Methods:** By multilevel regression analyses we quantified the extent to which individual differences in systolic blood pressure (SBP) could be attributed to population level factors. We investigated a possible interaction between the population in which the person lived, and their individual blood pressure level. Individual SBP level was obtained from the participants in the WHO MONICA Project in 1997. Individual SBP level was obtained from the participants in the WHO MONICA Project in 1997.

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PREVALENCE OF THE METABOLIC SYNDROME IN AN AREA WITH HIGH INCIDENCE AND MORTALITY BY HEART ATTACK

INTRODUCTION: The Region of Murcia is an area in the Spanish southeast showing one of the highest age-adjusted incidence and mortality rates by heart attack in the country. One of the main hypotheses that could explain this situation is the high prevalence of obesity and increased insulin-glucose, possibly added to other cardiovascular risk factors. Here we introduce the prevalence of metabolic syndrome in this population as well as its components, taken one by one.

METHODS: Through a population survey addressed to people older than 19 we have measured the components of the metabolic syndrome following a recently reviewed by the Adult Treatment Panel III (ATP III) from the National Cholesterol Education Program, 2001. The sample size has been of 2,952 people and the response rate of 90%. The metabolic syndrome is defined as the presence of three or more of the following risk factors: abdominal obesity (>120 cm in men or >80 in females); serum triglycerides (>150 mg/dl); cholesterol HDL (<40 mg/dl); diabetes (will be measured with glucose); blood pressure (>130/85 mm Hg). All have been measured after 15 minutes sitting rest.

RESULTS: The prevalence of the metabolic syndrome is 18% (95% CI 17.7-22.5). Being age the most frequent risk factor (71.9%), young people aged 20 to 30 years old (45%) and old people of 70 or more (7%). On the other hand, the least frequent are the alterations in glucose (15%), the age (25%) and the waist-hip ratio (29%).

CONCLUSIONS: The prevalence of the metabolic syndrome is high and similar to the one reported in the Canary Islands recently (24.4%) with also high mortality by coronary ischaemia, and in the USA (27%). In absence of longitudinal studies that could confirm the, the most plausible explanation of the high frequency of ischemic disease in our area is due, at least partially, to this constellation of signs that the metabolic syndrome is.

OPTIMAL, NORMAL AND HIGH-NORMAL BLOOD PRESSURE - CHARACTERISTICS OF INDIVIDUALS AND PREVALENCE OF CARDIOVASCULAR RISK FACTORS

Method: We have cross-sectionally observed men and women aged 20 years or over selected from the community by random digit dialing. We have excluded people under treatment with any antihypertensive agent whose blood pressure was <140/90mmHg. Therefore the results refer to 521 normotensive participants (250 men and 313 women). They were aged (mean±SD) 47±15 years (men) and 52±18 years (women). Blood pressure was measured in the sitting position after 5 minutes of rest.

Results: The proportion of individuals with optimal blood pressure was significantly higher in women (p=0.007). In both genders, age increased progressively with blood pressure (p=0.01 in women and p=0.03 in men). There was also a progressive increase in the adjusted mean levels of triglycerides (women: 1.01±0.88, 1.05±0.93 and 1.14±1.04, respectively in optimal, normal and high-normal blood pressure; p<0.001); total cholesterol (women: 195.9±39.2, 203.7±35.5 and 214.2±39.7, respectively in optimal, normal and high-normal blood pressure; p<0.001); and fasting glucose (women: 5.0±1.0, 5.3±1.2 and 5.5±1.3, respectively in optimal, normal and high-normal blood pressure; p<0.001). The prevalence of smoking decreased progressively with blood pressure (men: 22.0%, 21.4% and 10.3%, respectively in optimal, normal and high-normal blood pressure; p<0.001).

Conclusion: Besides higher blood pressure, individuals with high normal blood pressure present other characteristics associated with higher cardiovascular risk. Therefore, the interpretation of the effect of any possible intervention to lower blood pressure must take this into account.