SHORT TERM CHANGES IN CARDIOVASCULAR RISK FACTORS IN THE DI.S.CO. INTERVENTION PROJECT

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Key words: Risk factors - Cardiovascular diseases - Demonstration project

The Di.S.Co. Project - Sezze District Community Control - is aimed at achieving in the general population the prevention of chronic diseases through community intervention. Two areas are enrolled, one for intervention (25,706 subjects) and one for reference (12,655 subjects). In 1983 the first survey was conducted on a sample of males and females aged 20-69, and some risk factors for cardiovascular diseases were measured. In 1986 a second screening was conducted on the same sample examined in 1983 and in a new one to evaluate the effect of community treatment during the three-year intervention.

The main net differences obtained in the treatment area against controls (by the paired analysis), adjusted by the initial levels of the risk factors considered, were: in males body mass index: -1.3% and number of cigarettes smoked per day: -5.1%; in females systolic blood pressure: -2.1%, body mass index: -3.2% and number of cigarettes smoked per day: -34.4%. The theoretical probability of death from atherosclerotic cardiovascular diseases in 25 years was estimated by the multiple logistic function and in three years it increased by 1% in males, while for females it decreased by 6.5%.

INTRODUCTION

During the last few years, following some satisfactory results of primary prevention trials of cardiovascular diseases, a new generation of studies was started. They are sometimes called "demonstration projects" since they aim at transferring to large population groups the experience gained under more experimental conditions. At the same time, awareness of the multipotential predictive or even causal role of some cardiovascular risk factors, such as smoking, obesity and high blood pressure, has suggested that the end-points might be expanded to include not only coronary or cardiovascular diseases, but also a wider spectrum of non-communicable conditions and even all causes mortality.

A small-scale demonstration project called Di.S.Co. - Sezze District Community Control - was started in 1982 in a rural area located south-east of Rome. The project's objective was to reduce the morbidity and mortality associated with some non-communicable diseases through community medicine-based actions:
- modifying the risk factors for chronic diseases in a general population;
- identifying and treating high-risk subjects;

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- re-orienting health services toward prevention;
- creating a reproducible model for low-cost community intervention.

One sector of the Di.S.Co. Project is directed to the control and the prevention of cardiovascular diseases, which are the leading causes of death and disability. Its main 10-year objectives are to decrease the prevalence of smoking by 20%, the mean diastolic blood pressure by 3 mmHg and total cholesterol by 5% in the treatment area (as compared to the control area) by following suggestions of the Countrywide Integrated Non-Communicable Diseases Intervention Programme – C.I.N.D.I. of the W.H.O. (5).

The purpose of this paper is to report some results of the short-term treatment of cardiovascular risk factors achieved in three years of community intervention.

**MATERIALS AND METHODS**

Two areas are involved in this study, one for intervention (treatment area), corresponding to the Sezze Health District and including the municipalities of Sezze, Roccagorga and Bassiano with a total population of 25,706, and one for reference (control area), corresponding to the municipality of Priverno with a population of 12,655. Both areas are located in the province of Latina, about 100 km south-east of Rome.

In 1983, samples of males and females aged 20-69 yrs. were screened and the main risk factors for cardiovascular diseases were assessed (14, 15). Seven hundred thirty-nine males and 859 females in the treatment area and 942 males and 1,045 females in the control area were examined.

During the next three years many intervention activities were carried out in the Health District of Sezze.

The intervention programs included:
1. mass health education;
2. community checks on arterial hypertension;
3. information on diet;
4. anti-smoking propaganda;
5. campaign in favour of regular physical activity.

General health education was carried out at all levels with special attention to schools and work places. Among the younger generations, preventive activity mainly involved intervention in school to take advantage of the interest of children and adolescents, and thus reach the whole family. Intervention included the following activities:
- preparation and distribution of printed material;
- setting up of consulting rooms;
- organization of lectures and exhibitions;
- theoretical and practical courses for teachers and health care personnel.

These procedures were suggested by the World Health Organization for the prevention of non-communicable diseases (16) and by the experience of other community programs in Europe (17).

In 1986, a second screening was conducted on the same sample examined in 1983. The analysis of the population examined twice, in 1983 and 1986, will be referred to as paired analysis.

In 1986 a new independent sample was enrolled, and data on cardiovascular risk factors were compared with those collected in the sample enrolled in 1983; this analysis will be called unpaired analysis. The purpose of the second screening was to evaluate the effectiveness of community treatment during the three years of intervention. Three hundred fifty-three males and 443 females in the treatment area and 512 males and 553 females in the control area were examined in 1983 and in 1986. In the sample enrolled in 1986, 570 males and 648 females in the treatment area and 553 males and 725 females in the control area were examined.

The samples were statistically drawn from the electoral rolls and included people of both sexes within the age range of 20 to 69. Subjects were invited by letter to come to the examination center.

In this paper the following variables are considered: serum cholesterol, systolic and diastolic blood pressure, body mass index and number of cigarettes smoked per day. The prevalences of hypertensives, of hypertensives under treatment, of smokers were also computed.

The blood lipid tests were carried out by the Istituto Superiore di Sanità, Laboratory of Clinical Biochemistry, which was under quality control by the WHO Lipid Reference Centre in Prague, Czechoslovakia (2, 3, 4).

Blood pressure was measured while subjects were seated after four minutes rest. Measurement was made in the right arm with a standard mercury sphygmomanometer. Two consecutive readings were recorded and the analyses were done on their mean. Observers were trained according to the Manual of Operations of the MONICA Project (8), and testing was based on the magnetic tapes of the University of Minnesota (7).

Height and weight were measured with subjects in light underwear, following the technique suggested by the Manual of Operations of MONICA Project (8). These data were then used for computation of body mass index (weight in kg divided by height in square meters).

Smoking habits and use of antihypertensive drugs were evaluated with a questionnaire. Hypertension was defined as systolic value $\geq$ 160 mmHg and/or diastolic value $\geq$ 95 mmHg (mean of two measurements) or a history of anti-hypertensive treatment.

Mean values and proportions are presented for the treatment and the control groups. For the unpaired analysis, data were age-standardized by the direct method (males and females independently) taking the Italian population age-sex distribution reported in the 1981 census as reference. Differences between standardized mean values for 1983 and in 1986 were evaluated by the t test; differences between prevalences were tested by Remington's z test on proportions (13).

For the paired analysis, differences between mean values were evaluated by the paired t test and differences between standardized prevalences, by Remington's test on proportions (13).