The Multiple Risk Factor Intervention Trial

"MR.FIT"

Premature death and disability from coronary heart disease is the largest adult health problem in this area and in the U.S. The evidence that its onset can be delayed or that the large burden of coronary disease can be diminished is impressive but is all indirect. This evidence consists of the demonstration in systematic longterm studies by the Laboratory of Physiological Hygiene at the University of Minnesota, and by others, that some populations of middle-aged men in Japan and the Mediterranean countries get very little coronary disease while others, like the Finns, have even more than we in the U.S. The evidence also consists of the demonstration that among people in this country the risk of a person having a coronary attack, relative to others the same age, rises according to the level of individual or multiple risk factors. Of course, the absolute risk of having a coronary event in a given period of time is low, on the order of 1 percent per year for men aged 50. The influences leading to a coronary attack in an individual are many, combining inherited traits and environmental influences. But there is good evidence from Minnesota, Framingham and other places, that coronary risk is most strongly and consistently related to the combined influence of the levels of blood pressure, blood cholesterol and cigarette smoking. The fact that this epidemiological evidence coincides with much clinical-pathological and experimental evidence suggests that these influences are causal, and not just statistical associations. The fact that the Big 3 Risk Factors are additive in their effects and that they are, more or less, modifiable, provides the potential for primary prevention, prior to the heart attack, and the rationale for preventive programs.

Many physicians infer that this evidence is sufficient to apply in their practice, among high risk patients. Few would claim that cigarette smoking, elevated blood pressure or elevated serum lipids are beneficial! But many physicians are appropriately skeptical about applying these principles across the board to all their patients, or to children, or to extend these changes to a large public health effort. The country as a whole is not ready to change its "American Way" of eating, etc. without more definitive "proof."

We now have in the Twin Cities the unique, and possibly the last opportunity to test effectively whether CHD risk can be reduced by simple, safe and palatable hygienic approaches. Years of preparation have gone into the concept and design of the Multiple Risk Factor Intervention Trial sponsored by the National Heart and Lung Institute. The idea is simple; if CHD is strongly related to multiple risk characteristics, the most efficient way of reducing risk is to act on all risk factors simultaneously. This is quite compatible with medical practice in which one treats the whole patient and not one factor at a time.

The Multiple Risk Factor Intervention Trial is a definitive study of the potential for heart attack prevention and is getting under way locally and nationally at this time. Locally, the University of Minnesota has one of the operating units, under Henry Blackburn, M.D. and Henry L. Taylor, Ph.D. of the Laboratory of Physiological Hygiene in the School of Public Health. Dr. Blackburn is national vice-chairman of the study. The University's School of Public Health also harbors the national coordinating center of the trial, under Marcus Kjelsberg, Ph.D., in the Department of Biometry.

Locally the procedure will be a systematic one; individual letters will be followed by personal contact door-to-door in several census tracts of the

greater Twin Cities area. Men of eligible ages 35 through 57 will be invited to a nearby temporary screening center in a church or school for a brief sampling of their blood pressure, serum cholesterol and smoking habits. The first question asked of the men is the name and address of the physician to whom he would like the screening results sent. The individual's values will then be inserted into a computer program which computes his relative coronary risk based on all 3 risk factors. Men in the upper 15% of the combined risk scores will be called back for confirmatory tests and determination of their eligibility for the preventive trial. If they are eligible, the nature of the study and the 6 year commitment are fully explained. They are requested to discuss the matter with their own medical advisors. They are informed of, and they sign a consent for participation in this scientific study with full knowledge that all cannot enter the special treatment program. Half the men are randomly assigned to a special program designed optimally to change their habits and risk factor levels. The rest, as in any valid risk screening approach, are informed of their risk factor levels, as are their physicians, and are advised to seek physician's counsel.

The special risk factor intervention program will provided the sort of advice that could be used in an office setting, plus group meetings, with advice on diet and smoking, and with group support to help accomplish the change. After 10 group sessions there will be a maintenance program over the 6 years of the study. Both special care and the comparison group will have an annual follow-up visit to assess the coronary incidence.

The national study involves 12,000 high risk men from 20 centers. The Twin City contributes 600; of these 300 will be referred to their physicians previously undetected high risk men for management and 300 enrolled in a special program at the Laboratory of

Physiological Hygiene. Of these latter 300 drawn from the entire Twin Cities area, only about 150 are expected to require hypertensive drug therapy. No patients with manifest heart disease will be accepted in the study program. Patients with extreme values of blood pressure (115 mmgHg diastolic or greater) or serum cholesterol (350 mg% or greater) will be excluded from the study and sent immediately to their physicians.

This major preventive trial provides medicine with the most immediate and efficient way of testing the potential of heart attack prevention. It has, of course, a few possible "side-effects." The question of producing some anxiety by a "relative high risk" label is real. We have found that this is allayed by a prompt discussion of the concept of relative excess risk versus the absolute chance of having a heart attack which for any individual is low and acceptable. The question of interference with physician-patient relations during the 6 year trial must be faced. Most physicians, in the long experience of population studies and pilot preventive trials this Laboratory has had in the Twin Cities, are pleased to have their patients participate in well-directed preventive programs involving hygienic advice on diet, exercise and smoking habits, as long as the physicians are informed and are in control of the medical therapy and counsel. The new element in the MRFIT trial is that the intervention program will provide a stepped-care plan of weight reduction and drug therapy in about 150 or so hypertensives from the entire area. Obviously, the follow-up of 150 hypertensives drawn from a large area in the community will create very little invasion of medical practice for any one office or clinic. In contrast, an equal number of previously unknown hypertensives requiring ther. will be detected and referred to local practitioners by our screening effort.

Moreover, all results will be forwarded to the individual's physician throughout the 6 year study. All patients will be referred to their physicians for all medical matters outside counsel on these 3 risk factors. All will return to their own physicians at the completion of the study because the Laboratory of Physiological Hygiene is a research facility, is not affiliated with any hospital or clinic system, and does not engage in the private or consultant practice of medicine.

We believe that the medical profession in this area is sufficiently concerned and interested in knowing the real possibility of preventing heart attacks, which this study should answer, that any minor "side effects" of these community level investigations are tolerable. We therefore count strongly on the profession joining us in support of this research adventure. Background information may be obtained or specific questions answered by contacting:

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