

7 June 1972

MEMORANDUM FOR: Executive Director-Comptroller

SUBJECT: Resource One

Several months ago it seemed that the Agency was in the midst of an epidemic of heart disease - in a five week period, there was one heart attack per week, resulting in death or some degree of impairment.

Indeed, the incidence of heart attacks among adult white males in relatively affluent occupations in the U.S. has reached epidemic proportions. From such attacks (coronary artery occlusions) the overall U.S. death rate is now 500,000 a year, and 200,000 more die from strokes. At least 5% of the adult males in the Nation show signs of some form of heart disorder.

Given these statistics, and the visible effects of heart disease in the Agency, it might be productive to explore ways in which we can ameliorate or prevent the effects of heart disease on Agency employees.

But first, let us look at the villain in the piece - atherosclerosis. The modern name of the disease is derived from two Greek words: atherc, meaning "porridge" or "mush" and skleros, meaning "hard." This apparently contradictory combination describes the fact that the lesion begins as a soft deposit and hardens as it ages. Materials that have been deposited from the blood stream in the inner lining of the major arteries penetrate the arterial wall; they form plaques that gradually grow and thicken the wall, thus narrowing the blood channel. Eventually the thickening may close the channel entirely, or pieces of the plaques may break off and travel with the blood stream until they are stopped in a smaller artery and thereby plug it. When the blockage occurs in

the coronary artery, it produces a heart attack by cutting off the blood supply to the heart muscles; in the brain it produces a cerebral stroke; in the lower extremities it can lead to gangrene.

How are the fatty materials deposited in the arterial wall? There are several current hypotheses. The one most widely accepted is that the fatty substances are transported into the wall by plasma, the blood fluid, and are trapped within the wall. It is believed that the plasma itself, under the force of the blood pressure, can leak all the way through the wall of the artery in small amounts, which then return to the blood stream by way of the lymph-circulating system. The large lipoprotein molecules or complexes, on the other hand, cannot filter through the wall so easily; consequently they may tend to pile up within the wall, particularly if the plasma carries an excessive quantity of them. [1]

Conditions which tend to elevate the blood pressure, or increase the level of lipoproteins in the blood stream, favor the development of atherosclerotic plaques on the artery walls.

Many divergent factors have been implicated in heart disease - among them, smoking, high fat diets and stress. Interestingly enough, a person under competitive stress will be upping his serum cholesterol, regardless of what he eats. The body manufactures cholesterol as a response to stress.

The Air Force discovered this fact the hard way a few years ago. Air Force medics became aware that a high percentage of SAC generals were having heart attacks. A special program was then instituted which encouraged SAC generals to go on a low-fat diet. While most of the generals in this special program maintained their low-fat intake, surprisingly enough, their blood cholesterol level remained high, as did the incidence of heart attacks. The constant stress of running SAC bomber wings caused these top Air Force executives to maintain high blood cholesterol levels.

The Air Force solution: institute a program of planned rotation - moving SAC generals into relatively low stress assignments, after completing a SAC tour.

The result: a dramatic decrease in the heart attack rate among SAC generals.

In the case above, the stress was job-induced; however, it is part of the common wisdom that many people have stressful life-styles. The hard-driving, competitive perfectionist is a prime candidate for an early coronary (an even likelier candidate than American men in general, whose chances of having a heart attack before age 60 are one in five). This common wisdom has gained support recently from two San Francisco cardiologists. Drs. Ray H. Rosenman and Meyer Friedman in an 8-1/2 year study of more than 3,000 American males have discovered that temperament is more important in making you a candidate for a coronary than the number of cigarettes you smoke, your blood pressure, the level of cholesterol in your blood, or even your heredity. [2]

The work was undertaken in 1960 with substantial backing from the National Institutes of Health. A total of 3,500 male subjects aged 39 to 59, with no known history of heart disease, were interviewed and classified as personality type A or personality type B. Type A is the hard driving perfectionist who drives himself harder than he drives those who work for him. He is not much for exercise (not enough time), and when he does play golf, it is fast through. He never returns late from vacation, and his desk top is clean at the end of each day. Type B tends to be easy going, and hard to needle into anger. Type B takes his time in making decisions, as opposed to type A who makes decisions very quickly - in minutes, rather than days. Following type classification, all members of the study had complete physical examinations, which are still being performed on a regular basis as the program continues to accumulate data. So far, 257 of the test group - who are roughly half A's and half B's - have developed coronary heart disease. Seventy percent of the victims have been type A's.

What can we do to protect our number one resource, the Agency employee? Well, we can protect the employee from the Agency - recognizing that the Agency itself can pose serious threats to the physical and psychological well-being of Agency members. Some overseas stations

are more stressful than others. How do we recognize a stressful station? The rate of alcoholism and suicides are rough stress indexes. The heart attack rate is another index.

Some jobs may be especially stressful. It may be (I don't know) that stress is relatively high among Agency Watch Officers, Deputy Directors or Administrators (Administrators at the Goddard Space Flight Center suffered almost three times as many heart attacks as either the scientists or the engineers).

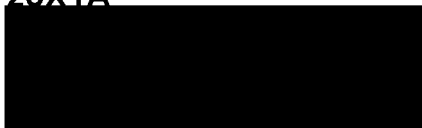
After identifying stress-prone stations or jobs, we can preserve our assets by using the SAC approach (limit exposure to the stressful job), or identify, and then change, the crucial factors about a job which induce stress.

We can educate our employees to the potential dangers of stress. The U.S. Department of Agriculture has a lecture series for its senior executives conducted by Psychiatrist Lee Buchanan. Dr. Buchanan lectures on factors which influence stress on the job - insecurity associated with having to venture outside normal job boundaries; difficult bosses or subordinates; worry over carrying responsibility for other people; the lack of a feeling of participation in decisions governing their jobs, and so on. The cost of such an educational program is minimal compared with the potential savings - the average Agency GS-15 has collected wages from the Agency in excess of \$250,000, has earned every nickel of it, and is worth another \$250,000 on the hoof.

What else can we do? The Surgeon General of the United States, Researchers Friedmand and Rosenman, and many others, have implicated cigarette smoking in heart disease. An anti-smoking clinic, sponsored by, and conducted within the Agency, represents a negligible investment for a potentially large savings in employee resources.

The technology of intelligence is carried in the heads of our employees - it is not in the computer banks on the ground floor, or in the filing cabinets which line our offices. Let us protect these assets by every means at our disposal.

25X1A



Chief, ADR/ Training Staff, OCS

REFERENCES

- [1] Atherosclerosis, Scientific American Magazine,
August 1966.

This article by Dr. David M. Spain, Director of the Department of Pathology at the Brookdale Hospital Center, Brooklyn, New York, is a good primer on the nature of atherosclerosis, and summarizes some findings of the effects of diet on atherosclerosis.

- [2] What Stress Can Do To You, Fortune Magazine,
January 1972.

This article by Walter McQuade summarizes current research exploring the relationship between stress and heart disease. It is well written, and profusely illustrated.

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