

## THE CORONARY PRONE BEHAVIOR PATTERN A REVIEW OF EUROPEAN STUDIES

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### ABSTRACT

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The purpose of this paper is threefold: to explain the elements of the coronary prone behavior, to give a review of the European studies about this behavior pattern and finally to discuss possible applications in occupational medicine.

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### THE CORONARY PRONE BEHAVIOR PATTERN

More than 20 years ago two American cardiologists, Friedman and Rosenman, detected that those patients who suffered from angina pectoris or myocardial infarction often showed a typical behavior. This behavior pattern is characterized by an intense striving for achievement, competitiveness, easily provoked impatience, feelings of time urgency and aggressiveness, over-commitment to vocation or profession and an excessive drive to accelerate things.

This behavior pattern does not only manifest itself by what people tell about themselves and their job but even more by the way or manner in which they tell about it. They typically do not wait before a question has been fully asked but they give their answer as soon as they have understood the question. So, they frequently interrupt a conversation. The posture is hyper-alert and the speech and gestures are abrupt. They often stress what they want to tell by topical gestures like desk-pounding or fist-clinching.

Those who are characterized by this behavior pattern are called type A. Those in whom this behavior pattern is weak or absent are called type B. In a long series of laboratory and epidemiological studies Friedman and Rosenman showed that this behavior pattern is an independent, unconfounded determinant of coronary heart disease (CHD).

The assessment of this behavior pattern is made by a specially designed interview. As the method is rather time consuming several psychologists have tried to make a questionnaire to measure the behavior pattern. The best questionnaire has been made by Jenkins. It is called the Jenkins Activity Survey

(JAS). Jenkins has shown that this questionnaire too has a predictive power as to the occurrence of CHD.

Summarizing we may say that a certain behavior pattern has proven to be a determinant of CHD in the U.S.A. It is still a question, however, whether this behavior pattern, which seems so strongly connected with the American culture, exists in other countries too. And secondly, whether it has the same unconfounded relation with CHD as was found in the U.S.A.

#### A REVIEW OF EUROPEAN STUDIES

As far as we know attempts to cross-validate the A/B typology are now being done in Lithuania, Poland, Czechoslovakia, Federal Republic of Germany, Belgium and Holland. A general experience is that although these countries have many sociocultural differences the type A behavior pattern can easily be found in all of them. The hypothesis that a competitive, hard driving, aggressive and time-pressured way of life could not exist in societies with a socialist economic structure is false.

In general, however, the type A behavior pattern is less "clear cut", smoother than in the U.S.A. Generally speaking it is harder to evaluate a Dutch or a Lithuanian interview than an American one. A typical difference, for example, between the U.S.A. and some European countries is that in this part of the world people are less inclined to compare themselves with others. One of the questions of the JAS is: compare yourself with the average worker in your present occupation. In the amount of effort put forth I give much more, a little more, a little less, much less effort. This question cannot be asked in the same way in Europe, because 75% of the people would answer: the same. Therefore the JAS loses some of its validity. Summarizing, it is beyond any doubt that the A/B behavior pattern can be found in eastern and western European countries, but it is less clear-cut, smoother than in the U.S.A. and therefore more people have to be placed into a midpoint category: behavior A and B.

The most important question is whether the behavior pattern is an unconfounded determinant of CHD. The crucial test of this hypothesis should be formed by prospective studies. These have been started in at least three countries but it will take some years before we are able to say something about the predictive validity of the interview or the JAS. There are, however, some case-control studies which showed that the A/B typology has some concurrent validity. In Holland Verhagen en Nass found that the percentage of type A's among those who have recently been hospitalized for a first myocardial infarction was very significantly higher than the percentage of type A's in a healthy control group. The same authors found that the JAS too discriminated significantly between the two groups.

Similar data are reported by Dr Wiesniewski from Inawroclaw in Poland. He has made a successful translation of the JAS and was able to demonstrate its concurrent validity in a case-control study. The JAS has also been used in the Kaunas Rotterdam Intervention Study. This is a study of the World Health

Organization about operational and behavioral components of large-scale intervention programmes. This study was done in Kaunas (Lithuania) and Rotterdam (Holland).

The Rotterdam team succeeded in making a Dutch adaptation of the JAS which replicated the interview assessments in about 73%. It was found that those who suffered from angina pectoris at the time of screening or who were treated for some form of heart disease had higher scores on the JAS A/B scale than those who were healthy. The Lithuanian team has met some technical difficulties in the construction of a Lithuanian form of the JAS. Therefore, they had to restrict themselves to an item analysis taking angina pectoris as the criterion. Seventeen items were found to discriminate between those with and those without angina pectoris. I shall point out some of these differentiating items to give you a better impression of the JAS:

- Does your work stimulate your energy?
- Are you in a hurry when you have to go somewhere, even if you actually have plenty of time?
- Would people who know you well agree that you can turn out a large amount of work in a short time?
- Would people who know you well agree that you tend to get irritated easily?
- Would people who know you well agree that you enjoy competition and try hard to win?

The Polish, Lithuanian and Dutch studies show that the A/B typology has a validity across cultures. Other studies by Kittel in Belgium, Langosch in the Federal Republic of Germany and Horvath in Czechoslovakia point in the same direction but these studies too are only in their very beginning.

#### APPLICATION IN OCCUPATIONAL MEDICINE

The question is: what does this information mean for occupational medicine. The answer is: not very much yet. We are still in the process of the cross-cultural confirmation of the role which the behavior pattern plays in the pathogenesis of CHD.

The next step will be to establish whether the characteristics of time urgency, impatience and aggressiveness are also job-related characteristics. It is not unlikely that some working conditions have type A elements as characteristics of the job itself. One may think for example, of air-traffic controllers, bus drivers, general practitioners (as opposed to dermatologists) and people who work at the end of a production line. Some knowledge about the A/B typology might be also important when a person consults you because he feels tired and exhausted. When this person is a type A and when his feeling of tiredness includes also some feelings of depression and vital exhaustion it is not unlikely that you have in front of you somebody who is at the end of his forces. It is known that about 70% of those who died suddenly from a heart attack had visited a doctor in a period of one month before their death. But very often the

physician was unable to detect the presence of an imminent myocardial infarction.

The presence of increasing angina pectoris in a type A person who shows feelings of vital exhaustion and depression should warn you that something serious may happen in the near future. Therefore, an analysis of his working conditions in which the elements of the type A behavior pattern are included could contribute to the prevention of CHD in occupational medicine.