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Academic Department of Child Health,
Queen Elizabeth Hospital for Children,
London E2 8PS

J. A. WALKER-SMITH
W. J. FRISCHMANN
S. KHAN

TYPE A BEHAVIOUR AND CORONARY HEART DISEASE

SIR,—Dr Bass and Dr Wade challenge the specificity of an association between type A behaviour and coronary heart disease (CHD) (Nov. 20, p. 1147), based on their failure to find a higher mean type A score in patients with extensive atherosclerosis than in patients with little or no atherosclerosis. An alternative interpretation is that type A scores were suppressed in the former patients and atypically increased in the latter.

There was a high psychiatric morbidity (61%) for patients with normal or "minimally diseased coronary arteries" compared with the 23% psychiatric morbidity for those with "important coronary occlusions", and the Bortner type A scale, was administered within 24 h of angiography. Eleven of the fourteen items on the Bortner scale¹ can be scored on an excited/not-excited dimension which coincides with the A/B dimension. The type A scores for the group with a high rate of psychiatric morbidity, chest pain, and no atherosclerosis may reflect their positive responses to the excited side of these items. This argument is strengthened by the fact the females in the minimal or no atherosclerosis groups did not have the high rate of psychiatric morbidity and did not have raised type A scores. Furthermore the usual positive relationship between socioeconomic status and type A^{2,3} was not found in the high psychiatric morbidity/non-atherosclerotic group, but was observed in the atherosclerotic group without the high rate of psychopathology. Thirdly, the atherosclerotic group may have suppressed type A scores because they answered in a way which would be appropriate (i.e., "easy going") for their suspected condition, a coronary event. Since this was the first admission with chest pain for 77% of this group, their reaction to the trauma may have been greater than for those in the other groups, of whom 50% had been admitted for chest pain before. Lastly, suppressed scores are further suspected for patients with advanced atherosclerosis since they had mean type A scores below that for Bortner's original type B group.¹ It should be noted, however, that within the group with advanced atherosclerosis and the least psychopathology, positive correlations were observed between severity of atherosclerosis and type A scores for females and males, with the association greater for females. This finding is consistent with the Framingham type A scale (another self-report scale) being a better predictor of CHD for females than for males.⁴

The Bortner scale may not have been the best choice for measuring type A since its predictive validity for CHD has not been established. The Rosenman-Friedman structured interview⁵ and Jenkins activity survey⁶ both have predictive validity for CHD and have, unlike the Bortner scale, previously been used in studies showing a relationship between type A and atherosclerosis

determined by angiography.⁷⁻⁹ The Bortner scale probably cannot substitute for the structured interview, since in Bortner's data 34% of interview-determined type A patients were classified as type B by the Bortner scale.

Departments of Epidemiology
and Public Health and Psychology,
School of Medicine,
University of Miami,
Miami, Florida 33101, U.S.A.

TERENCE A. GERACE
JOHN C. SMITH

SIR,—In Dr Bass and Dr Wade's study, which was not prospective, 99 symptomatic patients undergoing coronary angiography in a London teaching hospital were subjected to psychiatric and psychosocial assessment. Patients were assigned to one of three categories on the basis of angiographic findings and the three groups were compared with respect to prevalence of type A behaviour (Bortner scale), demographic characteristics, smoking habit, antihypertensive medication, and attendance at the accident and emergency department of the hospital. As expected, type A behaviour was associated with social class. Although the three groups differed with respect to all variables examined, the Bortner scores were adjusted for age and social class only. It is, however, unlikely that adjustment for all these variables or for other known coronary risk factors would have reversed the relationship between type A behaviour and the severity of coronary stenosis.

Since there is no evidence of an association between type A behaviour and coronary heart disease in British populations,¹ a positive relation between type A behaviour and the severity of coronary stenosis was not to be expected in this study. But the finding of a negative relationship needs explanation.

Bass and Wade have pointed out differences between theirs and other study populations. The problems with hospital based studies is selection bias. Symptomatic patients who present themselves at emergency departments or those admitted to teaching hospitals are highly selected groups of patients who do not represent all at risk subjects in the community; and not all patients admitted to a cardiac unit undergo cardiac catheterisation. Because of selection processes, there was perhaps an over-representation of subjects with type A behaviour but with normal or minimally diseased coronary vessels.

The other problem with cross-sectional or retrospective studies is recall bias. Bass and Wade report that in their study patients were interviewed for the purpose of behavioural assessment after having gone through the experience of sudden chest pain, examination by several doctors, admission to a cardiology ward, angiography, and other investigations. Anxiety, apprehension, and other stresses might have resulted in patients with normal coronaries over-reporting type A behaviour or having difficulty in recalling their usual reaction to situations stated in the questionnaire. It may be that, under the stress of hospital admission, patients who perceive symptoms of coronary stenosis in the absence of abnormality have a peculiar characteristic which is associated with systematic error in recalling their usual behaviour.

Selection and recall bias can be avoided in general population based cohort studies. In such studies, however, practical difficulties may arise in the follow-up and in ascertainment of the extent of coronary stenosis. It may not be possible to screen all members of a cohort or a representative sample, particularly the asymptomatic and apparently healthy individuals. Further research is needed to explain the discrepant findings in various studies. Future studies should be based on unselected populations and non-invasive assessment of coronary pathology.

Department of Epidemiology,
School of Public Health,
University of Michigan,
Ann Arbor, Michigan 48109, U.S.A.

KAZIM M. SHEIKH

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SIR,—Dr Bass and Dr Wade studied patients who were in the singular psychological position of waiting to be told the results of coronary arteriography—i.e., they were not flying high in the freedom of their customary behavioural patterns but were netted, helplessly anxious about their fate. To be set free immediately? To face life-long imprisonment in a cage of dependence upon doctors and drugs? To be cured by operation, perhaps, or to die of an accident in an inexperienced surgeon's learning curve?

Quite apart from any changes of perspective that might have been induced by the occupation of this unique position or the psychological effects of beta-blockade, the patients with the more severe coronary arterial disease already had their wings clipped in the natural course of the illness which has long been seen as a cause of loss of nerve and inability to cope with fresh challenges.¹ The common symptoms of fatigue and reduced energy and stamina are consistent with impairment of the heart's ability to increase its output in response to the physical and emotional challenges of life.² It has been suggested that these factors of "exhaustion and emotional depletion" are responsible for the unexpectedly low type A scores among the coronary patients who are no longer living freely but trapped in illness.³ I should be glad to see this explanation explored before Bass and Wade's conclusions are accepted as dogma.

The character of the patients with pseudoangina and little of no coronary disease is riveting. Most of them are hyperventilators^{4,5} and their most striking clinical feature is a commitment or addiction to battle. Fighting keeps them exhausted and highly aroused, and affects the peace of mind of those around them. It may be difficult for nurses or cardiac rehabilitation staff to deal with more than one at a time. It is not surprising to read that they score higher in type A behaviour than the coronary patients who seem comparatively tolerant and docile. Their peculiar disorders deserve special attention. It is not easy for them to find adequate treatment at present, and about half are still unable to work 16 ± 7.7 months after the arteriographic reassurance of freedom from cardiac disability.⁷ It is not to our credit that large numbers seek refuge in clinics catering for such disorders as food allergy, total body allergy, "twentieth century disease", "spasmophilia", "Royal Free disease" or "myalgic encephalomyelitis", and phobias of various sorts.

Cardiac Department,
Charing Cross Hospital,
London W6 8RF

P. G. F. NIXON

SIR,—Dr Bass and Dr Wade's conclusion that type A behaviour is not associated with coronary heart disease is at variance with other data.⁷⁻¹⁰ The Bortner type A questionnaire is probably not a valid instrument for uncovering this relationship. Type A coronary prone behaviour is complex and can only be accurately assessed in a structured personal interview by a trained observer. Although a variety of questionnaires have been devised to detect competitiveness, ambition, patience, hostility, preoccupation with work, or a constant sense of time urgency (Spielberger hostility scale, Bortner's short rating scale, adjective checklist, Thurstone temperament schedule), none correlate consistently and significantly with the structured personal interview.

The Jenkins activity survey, the most commonly used instrument, detects three main behavioural syndromes—hard

driving temperament, job involvement, and speed and impatience. Although the three scores derived correlate with the total evaluation, they do not necessarily relate to one another. Even with the Jenkins type A questionnaire, the accuracy is probably less than 75%. Type A people are often unaware of many of their behaviour patterns, or will deny them. Such individuals, who are sick, bored, or depressed, will also give erroneous responses.

The proposition that type A and coronary prone behaviour are interchangeable terms should be questioned. It may well be that certain facets of type A behaviour, such as latent hostility and time urgency, are more statistically linked with coronary proneness. There is also some suggestion that type A individuals who are successful and productive may have a fate far different from their Sisyphean counterparts who are constantly frustrated. This is even more difficult to evaluate, although there is a growing interest in the possible salubrious effect of this type of "eustress".

American Institute of Stress,
Yonkers, N.Y. 10703, U.S.A.,
and Department of Medicine,
New York Medical College

PAUL J. ROSCH

PARENTERAL NUTRITION BEFORE SURGERY FOR GASTROINTESTINAL CANCER

SIR,—Müller and colleagues' January, 1982, *Lancet* paper¹ on preoperative parenteral nutrition in patients with gastrointestinal cancer has already been cited as supporting the value of parenteral nutrition in the care of surgical patients.^{3,4} Although several prospective randomised controlled trials have been done⁴ Müller's is the only study to demonstrate an improvement in case fatality rate.

A follow-up study was presented at the annual meeting of the American Society for Parenteral and Enteral Nutrition in San Francisco, California, in February, 1982.⁵ At that meeting Dr Müller reported similar impressive data for patients with gastro-oesophageal cancer. He was asked if any of the patients in that study were also in the series reported in *The Lancet*. Some were, and he explained this by saying that the original study had been a prospective one evaluating all preoperative cancer patients. Although there was no difference overall, there had seemed to be a difference among the subgroup with gastrointestinal malignancies. The study of all cancers was published in German (reference not given). The patients with gastrointestinal cancers were then separated out and supplemented by an unknown number of other patients, and the results were published.¹ As the study continued, it appeared that the differences may have been due to the further subgroup—namely, patients with gastro-oesophageal cancer. This subgroup was then isolated, twelve patients were added to it, and the results were presented in San Francisco.

It is proper to examine data from a prospective study to identify subgroups which behave differently and to develop a second hypothesis based on this retrospective analysis of the data. The proper statistical manoeuvre at that point, however, is to begin a study de novo to examine the new hypothesis. Including the patients identified retrospectively, even if they were originally prospectively followed up, results in the introduction of a bias into the second study and makes more likely the possibility of a type I error (seeing a difference when none exists). Müller and his associates appear to have committed this design error in studies of gastrointestinal cancer and gastro-oesophageal malignancy. Thus the conclusion that preoperative parenteral nutrition is of value in these patients must be seriously questioned.

Department of Medicine,
Olive View Medical Center,
U.C.L.A. School of Medicine,
Van Nuys, California 91405, U.S.A.

RONALD L. KORETZ

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