CORONARY PRONE BEHAVIOR AND CORONARY HEART DISEASE

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SUMMARY

The present study investigated behaviour pattern in seventy five patients of electrocardiographically proved coronary heart disease and compared with age and sex matched seventy five normal controls. To measure type A-B behaviour in both groups a short rating scale developed by R. W. Bortner was used. It was found that patients of coronary heart disease had significantly higher score on Bortner Rating Scale and suffered more often with type A behaviour pattern as compared with normal controls. The significant correlation was also observed between type A behaviour and myocardial injury and hypercholesterolemia. No significant correlation was found between type A behaviour with age, sex, hypertension and parental history of coronary heart disease.

William Harvey in his famous treatise De Motu Cordis felt, 'every affection of mind that is attended with either pain or pleasure, hope or fear, is the cause of agitation whose influence extends to the heart.' Since then valuable information has gathered on association of certain risk factors of coronary heart disease but the presence of risk factors in an individual patient gives no certainty of the existence, severity or course of coronary heart disease. This has led to the emergence of type A behaviour pattern as a risk factor for coronary heart disease, which is most influential and widely tested hypothesis formulated by Friedman and Rosenman (Friedman et al., 1970).

Type A behaviour distinguishes coronary heart disease prone persons and also has predictive value for the development of coronary heart disease and its complications. Type A behaviour is a style of behaviour characterised by competitiveness, easily provoked impatience, time urgency, abruptness of gesture and speech, aggressiveness, ambitious drive for success, devotion to work, while those who relatively lack these behaviour characteristics have been designated type B.

In the Western Collaborative group and other studies the incidence of coronary heart disease was significantly greater in type A than type B subjects even after controlling the other risk factors, such as cigarette smoking, blood pressure and serum cholesterol levels (Rosenman et al., 1966; Zyzanki et al., 1976 and Hayness et al., 1980) while others could not confirm these results (Shekelle, 1978). Present study is an attempt to study type A-B behaviour pattern in coronary heart disease and to resolve existing controversy.

MATERIAL AND METHODS

In the present study 50 male and 25 female patients with electrographically proved coronary heart disease as per Scharnbroth's electrocardiographical criteria for myocardial death, injury and ischaemia were taken as study group from admitted patients in the Department of Medicine, D. K. Hospital, Raipur (M. P.). For normal controls equal number of cases to the study group were taken from healthy population matched with age, sex and socio-economic status with experimental group.

The patients of study group and normal controls were subjected to detailed evaluation

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by specially designed proforma to find out (a) socio-demographic variables, (b) detail history and to record findings of complete physical, systemic and relevant laboratory investigations including E.C.G. and (c) Bortner Rating Scale Score. Bortner Rating Scale was used for measurement of type A-B behaviour (Bortner, 1969) in both groups. The mean Bortner rating scale score of 13 was taken as an arbitrary cut off point between type A and type B behaviour.

In an attempt to avoid the influence of the major modifiable risk factors e.g. tobacco consumption, diabetes mellitus, tobacco consumers and subjects showing abnormal glucose tolerance test were excluded from the study. The personality traits of patients with hypertension and coronary heart disease is much similar therefore hypertensives were not excluded from the study (Anggard et al., 1986).

**RESULTS**

The study consists of seventy five patients with coronary heart disease and seventy five controls. The mean age of these patients was 48.66 years. Fifty were males (66.7%) and twenty five females (33.3%), majority of them were married and most of them had either higher secondary education (46.7%) or were graduate (34.7%). Sixty three (34%) belong to urban background and only twelve (16%) were from rural background. Monthly income of thirty three patients (44%) was between Rs. 200-399, twenty seven (36%) had income of Rs. 400-999 and rest of others had income above Rs. 1000. Majority of them (69.3%) were either administrative and executive (26.6%), professional and semi-professional (22.7%) or low grade servicemen (20.0%).

The mean Bortner Rating Scale score was higher in study group (13.91 ±1.90) as compared to controls (8.06 ±3.19) and difference was statistically significant (p<0.05).

Fifty four patients of coronary heart disease and nine controls had type A behaviour pattern while twenty one cases in the study group and sixty four controls had type B behaviour pattern. The difference in both groups was statistically significant (p<0.01)

Mean Bortner Rating Scale score was higher in patients with infarction (14.67 ±1.20) as compared to patients with ischaemia (13.00 ±2.00) and the difference was statistically significant (p<0.05). Mean age of cases with coronary heart disease and controls was 48.66 ± 6.93, 48.42 ±7.36 respectively and mean Bortner Rating Scale score in these groups were 13.91 ±1.9 and 8.06 ±3.19 respectively. Correlation between age and Bortner Rating Scale score was insignificant. Mean Bortner Rating Scale score in male and female patients was 13.87 ±1.69 and 13.87 ±2.24 respectively.

In the study group out of fifty four type A cases nine were found hypertensive while in twenty one type B-Group only three were having high blood pressure. The difference was statistically insignificant. Ten patients of type A and six of type B had parental history of coronary heart disease. The difference was insignificant. Hypercholesterolemia was found more in patients with type A as compared to type B and the difference was statistically significant (p<0.05).

**DISCUSSION**

A careful inspection of the results of the study revealed some important trends. Amongst seventy five patients of coronary heart disease 72% were having type A behaviour pattern whereas in equal number of normal controls only 12% were detected as type A behaviour pattern. The difference is statistically significant. At the same time patients with type A personality pattern scored significantly higher on Bortner Rating Scale as compared to type B. It shows that patients with coronary heart disease more often have type A behaviour pattern as compared to normal controls. Our findings are in agreement with the observation reported
from Friedman and Rosenman (1959), Rosenman et al. (1966), Thorll and Rahe (1972) and Wardwell and Bahnsen (1973).

Cases with myocardial infarction scored higher on Bortner Rating Scale as compared to ischemia only. It indicates that infarction is more often associated with type A personality pattern, in other words type A-B behaviour pattern is dependent on the severity of myocardial injury. Others have also reported the same (Jenhins, 1976; Frank et al., 1978 and Verghese et al., 1985).

Certain personality types are age and sex related. In the present study an attempt was made to study type A personality pattern in male and female patients with CHD in different age groups. We could not observe significant correlation between age and type A personality pattern. There was no significant difference in mean Bortner Rating Scale score in male and female CHD patients. Our findings are in conformity with the observation of Verghese et al. (1985).

Friedman and Rosenman (1959) reported that parental history of coronary heart disease (including both infarction and ischemia) does not effect personality pattern A or B, our observations also indicates the same.

Elevation of either systolic or diastolic blood pressure is a powerful contributor of coronary risk factor. We found that 14.3% cases of type A and 16.3% cases of type B behaviour pattern were hypertensive. Friedman and Rosenman (1959) reported the same. However, Blumenthal et al. (1975) have refuted these findings.

The relationship between serum cholesterol and coronary heart disease is unequivocal and whose serum cholesterol is below 175 mg% has less than half risk for heart then those with levels of 250 to 275 mg% (Hurst, 1978). Blumenthal et al. (1975) also found positive correlation between the magnitude of type A score and progression of atherosclerosis. In the present study 44.4% of type A and 28.6% of type B had hypercholesterolemia. The difference is statistically significant. Friedman and Rosenman (1959) had also reported positive correlation between hypercholesterolemia and type-A personality pattern. However hypercholesterolemia is cause or effect of type-A personality pattern it has to be investigated.

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