TYPE A BEHAVIOUR IN PATIENTS WITH MYOCARDIAL INFARCTION : A CASE-CONTROL STUDY

M S I MULLICK[1], MOMENUZZAMAN[2], MASUDA KHANAM[1], JHUNU SHAMSUN NAHAR[1]

Summary

One hundred patients of first attack of myocardial infarction and equal number of normal controls were studied to find out the relationship of type A behaviour with myocardial infarction as measured by Diagnostic Indicators of Type-A Behaviour. Type- A behaviour was detected only in 8 patients as compared to 5 controls which was not significant. However, excessive competitiveness and hostility component of Type-A behaviour was found statistically significant between patients with myocardial infarction and controls. The findings do not support the association of type-A behaviour with myocardial infarction as a risk factor. Further exploration of these behaviour factors are needed.

Introduction

Over the past long time evidence the accumulated suggesting that it is not only biological risk factorts but also the psychosocial factors are important for the development of coronary heart disease. Of the psychosocial factors, type A behaviour pattern is one of the risk factors[1]. This overt behaviour pattern is characterized by an intense, sustained drive to achieve self selected but poorly defined goals, profound inclination and eagerness to compete, persistent desire for recognition and advancement, continuous involvement in multiple and diverse functions constantly subject to time restrictions, habitual propensity to accelerate the rate of exclusion of many physical and mental functions and extraordinary mental and physical alertness[2]. Resenman et al[3] conducted 8-year folow-up study over 1000 healthy men who had been assessed for type A behaviour and found that coronary heart disease was $2^1/_2$ times more common in type I A men than in those lacking type A trait. Other replication studies explored the similar association of type A behaviour and the development of coronary heart disease[4-6]. These findings suggest that assessment of type A behaviour can improve the prediction of incident coronary cases. However, a number of subsequent studies could not replicate the original findings[7-8]. Furthermore, Regland & Brand[9] observed that type A hebaviour is inversely related to survival after myocardial infarction. In particular, some researchers reported that hostility component of type A behaviour associated with incidence of ischemic heart disease[10-12]. The present study was undertaken to find out the relationship of type A behaviour with myocardial infarction.

Materials and Methods

A consecutive series of 100 admitted patients of first acute myocardial infarction (MI) from the Institute of Postgraduate Medicine & Research, National Institute of Cardiovascular Diseases and Dhaka Medical College Hospial of Dhaka city over the period of May 1995 to June 1996 were selected as study group. Patients older than 75 years of age, cognitive impairment, MI complicated with CVD were excluded. Diagnosis of MI was based on WHO criteria, i.e. presence of any two of the three criterias e.g. typical clinical features, classical electrocardiographic changes and supportive enzymatic evidences[13]. Their age ranged between 28 and 74 years with a mean of 49.20 (SD ± 10.06) years. Thirty six patients were in the age group of 46-55 years and only 6 cases were aged below 35 years. Seventy were males and 30 were females with a male-female ratio 1 : 0.45. Twenty six were illiterates. Of the 74 lierates, 30 cases were educated from primary to secondary level and graduates were 18 cases. Only 7 cases were found postgraduates. Among the subjects, 30 were service holders, 21 were housewives, 16 were businessman, 12 were retired, 11 were cultivators, 4 were unemployed and rest were of other occupations. Urban rural distribution were 63 and 37 cases respectively. Fifty seven cases were predominantly of middle income group and only 15 cases belonged higher class. Eighty one cases were married, 11 were widowed and 6 were unmarried. Divorced and separated were 1 case for each.

Another sample of 100 normal subjects were selected from the healthy relatives of the patients admitted to the different wards of the Institute of Postgraduate Medicine & Research and Dhaka Medical College Hospital to from a control group who met the same demographic criteria of MI patients group. All the subjects of both the groups were interviewed by one of the authors after informed consent. The interview covered sociodemographic variables, physical and mental health status. Type A behaviour was assessed by the Diagnostic Indicators of Type A behaviour of Friedman et al[14]. It has two components-time uregency and competitive hostility. The subjects were identified to have type A behaviour when both two components were present in them.

1. Department of Psychiatry, Institute of Postgraduate Medicine and Research, Dhaka
2. Department of Cardiology, Sher-e-Bangla Medical College, Barisal.

Bangladesh J Medicine 1997; 8 : 19-21

The collected data were processed and comparison was made between study group and control group.

Results

Analysis of the components of Diagnostic Indicators of Type A Behaviour is shown in Table-I. It revealed that among the 100 patients of first attack of MI, 8 patients were identified as having type A behaviour, considering the presence of both time urgency and competitive hostility. Type A behaviour was found 5 cases among the control group. The difference between two groups in terms of presence of Type A behaviour was to significant (P >0.05). Considering the individual component of Type A behaviour, time urgency was found in 11 cases of the MI patients and that was found in 7 cases of the controls. This differece was also insignificant. However, excessive competitiveness & hostility component was found in 20 cases and 9 cases in study group and control group respectively. The differecec just reached the level of significance (x^2 =4.17, dif = P<0.05).

The sociodemographic characteristics of subjects having type A behaviour of both the study group and control group are presented in Table-I. It reveals that mean age of MI patients with type A behaviour was 51.75 (SD = 5.99) years and that for controls with type A behaviour was 46.50 (SD = 10.20) years. The difference was not significant (t-1.03, df = 11, P > 0.05). All MI patients with type A behaviour were male. Of the 5 controls with type A behaviour, only 1 case was female. Male-female ratio of type A behaviour MI patients was 1 : 0.00 insignificantly differed from that of controls with type A behaviour which was 1 : 2. 25. The other sociodemographic variables were present too infrequently in either population for differences to achieve statistical significance and therefore, were unimpressive.

Table-I : *Comparison on components of type A behaviour*

Component	MI group (N=100)	Control group (N=100)	X2 Sig
Both time urgency and excessive competitiveness & hostility	8	5	NS
Time urgency	11	7	NS
Excessive competitiveness & hostility	20	9	P<0.05

Table-II : *Comparison on demographic variables*

Variable	MI patients with type A hebavioru N=8	%	Normal Controls with type A behaviour N=5	%
Age (year) :				
26-35	0	0.00	1	20.00
36-45	1	12.50	1	20.00
46-55	5	62.50	2	40.00
56-65	2	25.00	1	20.00
Mean age :	51.75 ± 5.99		46.50±10.20	
Sex :				
Male	8	100.00	4	80.00
Female	0	0.00	1	20.00
M/F ratio :	1 : 0.00		1 : 0.25	
Education :				
Primary	0	0.00	0	0.00
Secondary	2	25.00	1	20.00
SSC	1	12.50	0	0.00
HSC	0	0.00	1	20.00
Graduate	4	50.00	2	40.00
Postgraduate	1	12.50	1	20.00
Occupation :				
Service	5	62.50	2	40.00
Business	2	25.00	1	20.00
Retired	1	12.00	0	0.00
Cultivator	0	0.00	1	20.00
Unemployed	0	0.00	1	20.00
Social background :				
Rural	0	0.00	1	20.00
Urban	8	100.00	4	80.00
Economic background :				
Higher	2	25.00	1	20.00
Middle	6	75.00	4	80.00
Lower	0	0.00	0	0.00
Marital Status :				
Married	7.	87.00	5	100.00
Unmarried	1	12.50	0	0.00

Discussion

In the present study, the incidence of type A behaviour in both the study group and control group was very low which was 8% and 5% respectively and no significant differeences emerged between patients with myocardial infarction and controls in term of their type A behaviour. This finding is inconsistent with the earlier report2-6 but consistent with the findings of some recent studies[7-8]. Shekell et al[7] interviewed 12,772 men at 22 centers and observed that type A behaviour pattern was not significantly associated with risk of first major coronry events after a mean follow up of 7.1 years. In a very recent case control study. Welin et al[8] studied the relationship between behavioural factors and non-fatal myocardial infarction by comparing consecutively admitted 288 male and 55 female MI patients with normal population sample of 283 men and 129 women, no significant difference was reported between two groups in terms of type A behaviour pattern. However, negative association of type A behaviour and MI in our study partly might be due to pattern of sample studied, unstandardized diagnostic criteria and socio-economic cultural context of Bangladesh.

In this study, excessive competitiveness & hostility component of type A behaviour was found significantly higher in MI patients. Significant, positive and monotonic association between hostility and the incidence of ischemic heart disease was reported in different studies[10-12]. Hostility factor was found to be the strosgest predictive component of type A behaviour in the Western Collaborative Group Study[12] and was also found to be associated with future coronary heart disease of other studies[11,12]. These findings indicate that people who have type A traits but lack hostility may not be particularly risk. On the other hand, people who have a distressful and cynical attitude toward others and who are therefore likely to become hostile and angry when stressed have been shown to be more than normally susceptible to ischemic heart disease.

No conclusion could be drown from the comparison of sociodemographic variables between MI patients with type A behaviour and control population with type A behaviour because of low incidence of type A behaviour and thereby low frequency of variables in both the groups. However, it reveals that type A behaviour is more frequent in males and predominantly associated wtih middle class with higher educational background. Moller et al[16] found a significant negative association between social class and type A behaviour. In contrast, Rossouw et al[17] observed type A behaviour was positively associated with higher income and educaton.

The result of this study raise questions regarding the robustness of the type A hypothesis in its present form. Further studies are needed ot investigate these questions and to evaluate the validity of procedures used to assess behaviour pattern.

References

1. Crider AB, Goethals GR, Kavanaugh RD, Solmon PR. Psychology Rth ed. Harper Collins College Publishers. New York 1993.
2. Friedman M, Rosenman RH. Association of specific overt behaviour pattern with blood a cardiovascular findings. JAMA 1959; 169 : 1286-1296.
3. Rosenman RH. Brand RJ, Jenkins D, Friedman M, Straus R, Wurm M. Coronary heart disease in the Western Collaborative Group Study : final follow up experience of 82/2 years. JAMA 1975; 233 : 872-877.
4. Rosenman RH, Brand RJ, Scholtz R, et al. Multivariate prediction of cornoary heart disease during 8.5 years follow up in the collaborative group study. Am J Cardiol 1976; 37 : 903-910.
5. Haynes SG, Feinleib M, Eaker ED. Type A behaviour and the year incidence of coronary heart disease in the Framingham Heart Study. Act Nerv Super Praha 1982; Supl 3 : 57-77.
6. Friedman M, Powell L, Thoresen C. Effects of discontinuance of type A behaviour counselling on type A behaviour and cardiac recurrence rate of post myocardial infarction patients. Am Heart J 1987 J 1987; 114 : 483-490.
7. Shekelle RB, Hulley SB, Neaton JD, et al. The MRFIT behaviour pattern study a behaviour and incidence of coronary heart disease. Am J Epidemiol 1985; 122 :559-570.
8. Welin CL, Rosengren A Wilhelmsen LW. Behavioural characteristics in patients with myocardial infarction. A case-control study. A Cardiovasc Risk 1995; 2 : 247-254.
9. Ragland D, Brand R. Type A behaviour and mortality from coronary heart disease. New Engl J Med. 1988; 318 : 65-69.
10. Koskenvuo M, Kaprio J, Rose RJ, Kesaniemia A, Sarna S, Heikkila K, Langinvainio M. Hostility as a risk factor for mortality and ischemic heart disease in men. Psychosom Med 1988; 50 : 330-340.
11. Shekelle RB, Gale M, Ostfeld AM, Paul O. Hostility, risk of coronary heart disease and mortality. Psychosm Med 1983; 45 : 109-114.
12. Hosteon BK, Vavak CR. Cynical hostility : Developmental factors, psychosocial correlates and health behaviour. Health Psychol 1991; 10 : 9-17.
13. Hampton J. Prognosis in ischemic heart disease. Medicine International. Bangladesh ed. 1989; 3 : 2818-2823.
14. Friedman M, Thoresen CE Gill JJ, et al. Diagnostic Indicators of Type A behabivour. In Kaplan HI, Sadock BJ Eds. Synopsis of Psychiatry. 7th ed. Baltimore : Williams and Wilkins, 1994; 227.
15. Mathews K, Glass DC, Rosenman RH, et al. Competitive drive, pattern A and coronary heart disease : a further analysis of some data of the Western Collaborative Group Study. J Chronic Dis 1977; 230 : 489-498.
16. Moller L, Kristensen TS, Hollnagel H. Social class and cardiovascular risk factors in Danish men Scand J Soc Med 1991; 19 : 116-126.
17. Rossouw JE, Joosts PL, Steenkamp RJ, Thompson ML, Jordan PC, Swanepoel AS. S Afr Med J 1990; 78-85.