

The Effect of Personality Behavior Pattern, Type A and Type B, on Myocardial Ischemia during Daily Life

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ABSTRACT:

BACKGROUND:

Type A behavior has been related to coronary heart disease as an independent factor. Therefore, ischemic electrocardiographic (ECG) changes may be more prominent Type A than in Type B individuals. ECG abnormalities were assessed by the cardiac infarction injury score which has predictive power for sudden death⁽¹⁾

OBJECTIVES:

(1) To find out the relationship between length and severity of ischemia in Holter monitoring of myocardial ischemia during daily life and personality (type A and type B) through a study of a sample of patients during a stressful time.

(2) To compare between personality (type A and type B) in the findings of Holter monitoring.

METHOD:

Holter ECG was carried out on 80 patients suffering from an ischemic heart disease referred consecutively to the Holter ECG out patient clinic in Al-Kadhmiya Teaching Hospital.

Wail's scale was employed on the patients to know the type of personality.

RESULT:

The results of the study show that there is a significant difference between patients with (personality type A and those with type B) in episodes of painful ischemia but there is no significant difference in terms of severity and length of ischemia between personality types.

DISCUSSION:

Mental stress –induced ischemia had longer total duration and more frequent episodes of ambulatory ischemia episodes^(2,3). The study showed that more than half patients were considered Type A. Painful episodes of myocardial ischemia occurred more frequently in Type A patients during a stressful period of ambulatory Holter monitoring compared with Type B.

CONCLUSION:

This study showed that during daily life period that type A personality has more episodes of painful ischemia than type B.

Recommendation:

In light of these results, it is recommended that a further study on a larger sample for a longer time is necessary in order to demonstrate more clearly the differences between personality type A and type B.

KEY WORDS: myocardial ischemia, type a personality, type B personality

INTRODUCTION:

The literature shows that persons exhibiting a type A behavior pattern (an unusual sense of time urgency, excessive job involvement, and hostile/competitive interpersonal relationships) are more prone to the risk of initial myocardial infarction⁽⁴⁾. Type A behavior pattern may be defined as "a chronic insistent struggle to achieve more and more in less and less time, even if not required to do so, against the opposing obstacles efforts of other things or other persons." It includes behavioral dispositions such as ambitiousness, aggressiveness, competitiveness and impatience; specific behaviors, such as muscle tenseness, mental alertness, rapid

and emphatic speech stylistics, rapid pace of most activities and emotional responses such as irritation, hostility and anger that is usually covert⁽⁵⁾.

In this study, Wail's scale⁽⁶⁾ for personality assessment has been used. This scale was introduced in 1992 under the supervision of many Iraqi specialists in this field.

The objectives of this study were the following: (1) to find out the relationship between the findings of length and severity of ischemia from Holter monitoring of myocardial ischemia during daily life and personality (type A and type B) studied during a stressful time and (2) to compare the findings from Holter monitoring between symptomatic ST depression (episodes of painful ischemia), and asymptomatic ST depression (episodes of silent ischemia) during daily life for personality type A and type B.

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PATIENTS AND METHODS:

For the purpose of achieving the aims, a quasi-experimental design has been used throughout the present study during the period from 15th of Jan 2007 to the 15th of Aug 2007.

The studied population included 80 patients with ischemic heart disease referred consecutively to the Holter ECG out patient clinic in Al-Kadhmiya Teaching Hospital. These patients were chosen according to the following criteria

- a- The patients were diagnosed as having a definite ischemic heart disease.
- b- Their chest pain lasted less than three months may be due to we hypothesized that type A behavior pattern has been associated with the onset of myocardial ischemia, so too ,though independly, has the presence of stressful life events in the period preceding illness.
- c- -Informed consent was obtained from the legal guardians in all cases.

Six patients refused to participate and 4 patients did not complete Wail's scale were excluded from the study .Thus complete data were collected on 80 patients.

content validity of the questionnaire was determined through a panel of (10) experts in Al-Kadhmiya Teaching Hospital and Ibn –Al-Beitar hospital .

Internal consistency reliability was employed for the determination of the questionnaire's reliability Alpha. correlation coefficient was computed and indicated that $r=0.96$ which was adequately reliable.

Ambulatory monitoring of twenty four hour period a day was performed using a modified inferior lead and a precordial lead corresponding to the maximum ST depression with daily life activity.Quick prop electrodes and Oxford medilog 11 recorders were used .The patients were encouraged to return to normal active life style and complete extensive diaries to record the severity and activity of their typical attacks of palpitation or chest pain .They were also encouraged to write in the diary any other activities such as walking ,working ,eating and the times they went to bed. In addition ,an analysis of the tapes was performed on the Oxford system mediolg 11 analyzer.

An episode of transient ST segment depression was defined as horizontal ST –depression of at least 0.1 MV measured 0.05 second after J point during daily life, compared to the resting ST-segment

Wail's scale⁽⁶⁾ for the assessment of personality behaviour pattern was employed on the patients .The scale is composed of 72 items on the following fields:

I	Expression of anger	16 items
II	Competition and Ambition	15 items
III	Need to control	13 items
IV	Impatience	11 items
V	Rapidity	10 items
VI	Aggressiveness	7 items

The persons who scored more than 36 were regarded as Type A personality, where as persons who scored less than 36 were regarded as Type B personality (Appendix 1).

Statistical Analysis

Mean- Standard deviation and T-test value were computed to estimate the differences between the two types of personality (Type A& Type B)

Chi- square test and Kolmogorve- Smirnov test used two samples to determine the significant

difference between the findings of Holter about personality (Type A & Type B)

Kolmogorve- Smirnov test was considered the most appropriate non –parametric test for the purpose of the project study and it was interchange ably used with Chi-square ,in cases where the frequencies in each cell in the rows or the columns had less than five frequencies

PERSONALITY BEHAVIOR PATTERN

RESULTS:

Table :(1) Demographic characteristics of patients with ischemic heart disease

	Type A		Type B	
	No.	%	No.	%
Sex				
Male	32	57.14	10	41.66
Female	24	42.85	14	58.33
Total	56	100	24	100
Age				
21-30	18	32.14	2	8.33
31-40	10	17.85	6	25
41-50	8	14.28	6	25
51-60	12	21.42	4	16.66
61-70	6	10.71	6	25
71-80	2	3.57	-	-
Total	56	100	24	100
Mean	42.64		48	

Table-1- showed that 32 (57.14%) of patients type A were males and the mean age was (42.64) while 10(41.66%) of patients type B were males and the mean age was(48).They range between (21-80) years.

Table :(2) Comparison between personality type A and personality type B of patients with ischemic heart disease

Personality	Freq	%
Type A	56	70
Type B	24	30
Total	80	100

Table (2) showed that the total number of patients (personality type A) was 56 (70%)while the total number of patients (personality type B) was 24 (30%)

Table:(3)Comparison of symptomatic and asymptomatic ST segment depression between personality Type A and Type B

Characteristics	Type A	Type B	Chi-square
	No.	No.	
Symptomatic ST depression(episodes of painful ischemia)	38	8	S
Asymptomatic ST depression(episodes of silent ischemia)	18	16	N.S
Total	56	24	S

,S=significant,

N.S=non significant

No.=number

Table-3- showed that type A patients reported significantly more episodes of ischemic pain (symptomatic ST depression) than type B in 24 hours Holter ECG ,while there was no significant difference between the two groups in the number of episodes of silent ischemia (Asymptomatic ST depression) when analyzed by Chi-square.

PERSONALITY BEHAVIOR PATTERN

Table :(4) Comparison of heart rate during daily life on the 24 hours Holter ECG for type A personality and type B personality

Heart rate during daily life	Type A		Type B		t-test	C.S
	X	SD	X	SD		
	119.35	31.07	116.08	25.30		

N.S=non significant

Table -4- revealed that there is no significant difference between patients (personality type A and type B) in heart rate during daily life on the 24 hours Holter ECG and their heart rate ranged between (80-120) beats per minutes

Table: (5)Duration and Length of ischemia during daily life on the 24 hours Holter ECG for group type A and group type B

Mean length of ischaemia per episodes (min)	Type A		Type B		t-test	C.S
	X	SD	X	SD		
	12.93	5.39	14.13	4.52		
Total mean ischemic time (min)	104.5	7.78	107.20	26.97	0.48	N.S

N.S=non significant; min=Minute

Table 5 showed that there is no significant difference between patients (personality type A and type B) in length of ischemia per episodes and total mean ischemic time during daily life on the 24 hours Holter ECG .

Table :(6) severity of ischemia during daily life on 24 hours Holter ECG for group type A and group type B

Characteristics	Type A	Type B	K.S
	NO	NO	
ST depression More than 2 mm	10	8	N.S

K.S=).Kolmogorve Smirnov; N.S=non significant

Table 6 showed that there is no significant difference between patients (personality type A and type B) in severity of ischemia during daily life on the 24 hours Holter ECG .

DISCUSSION:

Coronary artery disease patients showed a disposition to take more responsibility at work, working more hours overtime, obtaining less satisfaction from their jobs, expressing greater hostility when slowed down by others, and feeling more dissatisfaction with their educational level and achievement of life goals⁽⁷⁾ .

In relation to age ,the findings showed that the mean age for personality type A was (42.64) while the mean age for the personality type B was (48) (Table 1). Another study⁽³⁾ reported that patients whose age was between (40-59) years old showed an increased risk of coronary artery disease in men and women with " type A" personality.

This study showed that "type A" patients reported more angina than "type B" and suggested a greater severity of disease or more acuity to account for it (table2). Another study^(2,8) reported that the history of angina or heart attack was positively associated with type A personality.

"Type A" behavior pattern is a characteristic which may best be demonstrated in response to an environmental or psychological stress such as that which we have described in the study . In "type A" patients ,there were significantly more episodes of painful ischemia than "type B" patients and the number of episodes of silent ischemia was not significantly different in "type A" and" type B" (table 3).

Regarding the analysis of the heart rate in the minutes before the onset of ST-depression, there were no significantly different increase in heart rate of personality "type A" compared with personality "type B" (Table 4). A study ⁽⁹⁾ reported that "type A" patients had a lower threshold for reporting all events including ischemia as painful .Certainly they reported more situations as stressful (emotional upset) at the time of stress as compared to the later date. This has been noted in type A subjects (table 3).This finding was similar to many other findings in the literature (Cole et. al., 2001,Case etal.,1993 and Hey et al., 1993 and

Larson,1993) which suggested that ischemic response of the "type A" patient at the time of stress may not have been due to the acute hypoxia effect of anxiety or increased activity, but rather to the changes which alter the threshold for ischemia .It has been suggested that the behavioral pattern mediates its effect through an increased adrenergic tone .This might have an effect in increasing a peripheral resistance or coronary tone , predisposing to myocardial ischemia at lower heart rates.

CONCLUSION:

This study concludes that ,during a stressful period ,Type A patients did not have more total ischemia but more painful episodes. They are thus more likely to present to a physician at an earlier date, receive maximum antianginal medication sooner and be offered Holter ECG monitoring more promptly than "type B". This, therefore, may be one reason why "type A" behavior pattern may be considered as a risky factor for a coronary artery disease in some studies.

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