Type "A" Behavior Pattern (TABP) Among Coronary Heart Disease Patients : Prevalence and Psychological Correlates

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Abstract

To study the prevalence of Type "A" behavior pattern (TABP) among the coronary heart disease patients (CHD) attending Zagazig University Hospitals (ZUH) and to find out the demographic, clinical and psychological correletes of (TABP); we selected two groups of patients, the coronary group and the control group. The coronary group included 90 patients (30 patients with stable angina, 30 patients with recent myocardial infraction and 30 patients with old myocardial infraction) while the control group included 30 patients from other departments of the (ZUH). All subjects underwent clinical examination and laboratory investigation to reach the final diagnosis. Psychological assessment included Bortner Scale to measure TABP, Zagaig Depression Scale (ZDS) to measure severity of depression and the Arabic version of MMPI for assessing personality characteristics of the patients. It was found that (1)The (TABP) was more prevalent among the coronary group than among the control group (70 % versus 30 %). (2)The (TABP) coronary patients were characterized by being younger in age, more educated, more depressed and had higher scores on the following scales of "MMPI" : Hypochondriasis (Hs), Depression (D); Hysteria (Hy); Psychopathic deviation (Pd); Psychasthenia (Pt) and lower score on social introversion (Si).

Introduction: The concept of type "A" behavior pattern (TABP) was introduced by Friedmen and Rosenman (1959) to characterize the majority of their coronary heart disease patients. It is defined as an overt behavior syndrome or style of living characterized by excesses of competitiveness, striving for achievement, aggressiveness (sometimes stringently repressed); time urgency, acceleration of common activities, restlessness, hostility, hyperalertness, explosiveness of speech amplitude, tenseness of facial musculature and feelings of struggle against the limitation of time and the insensitivity of environment (Friedman and Powell, (1984. The converse of this behavior pattern (Type B) is marked by an absence of Type A characteristics.

There are many re studies which assessed the relationship between type A behavior pattern and the incidence of coronary heart disease. Many studies found a positive relationship such as the Western collaborative group study (Rosenman et al., 1975), which followed-up 3,200 employed men free of coronary heart disease for a total of eight and half years. The final follow-up report showed that by the end of the study those men assessed as type A had a risk ratio of 2.2 for development of coronary heart disease compared to type Bs. On the other hand many studies found no relationship between Type A and coronary heart disease, such as the studies of high risk persons (Shekelle et al., 1985) and the population based study of approximately 2200 men of Japanese descent enrolled in the Honolulu Heart Program (Cohen

and Reed, 1985).

Since the development of the concept of Type A behavior pattern (TABP) it has been the focus of hundreds of studies in the developed countries. There are few studies in Egypt which addressed this topic.

Aim of the study

1. To assess the prevalence of (TABP) among coronary heart disease patients attending the Zagazig University Hospital.
2. To find out the demographic, clinical and psychological correlates of (TABP).

Subjects and Methods

I.Subjects:

(A) Coronary group: during the period of the study 92 cases with a diagnosis recent myocardial infarction were admitted to the coronary care unit in the cardiology department of Zagazig University Hospital, 35 cases were excluded from the study because they had one or more of the risk factors of coronary heart disease (smoking, hypertension and diabetes mellitus). The remaining 57 cases had participated in the study, however 27 patients did not complete the laboratory and psychiatric assessment so, they were excluded. The remaining 3O patients were considered as a group of recent infarction. Acute myocardial infarction was diagnosed according to criteria of WHO (Public health in Europe, 1976). An equal number has been chosen from those attending the outpatient clinic of cardiology for follow- up and treatment. Thus 30 patients with an old infarction in addition to another 30 cases with stable angina pectoris were included as well. So, the patients with coronary heart disease included in this study were 90 cases.

(B) Control group: 30 patients were chosen from the outpatient and inpatient wards of the medical and surgical departments of Zagazig University Hospital. None had a history or an ECG evidence of ischaemic heart disease. They were composed of 9 cases with hepatosplenomegaly, 4 with rectal bleeding, 6 with 5 gastritis, with bronchial asthma, 2 with cellulitis and 4 with renal colic.

II. Methods:

All cases were examined clinically and had undergone appropriate investigations to diagnose the disease in every patient. These investigations included resting ECG; treadmill exercise ECG (in selected cases); cardiac enzymes (CPK, LDH), Serum total cholesterol; fasting and post- prandial glucose level; liver functions test, renal function tests and complete blood picture. Psychiatric assessment included Bortner Self- Rating Scale; Zagazig Depression Scale (ZDS) and Minnesota Multiphasic Personality Inventory (MMPI). The Bortner Scale was first described by Bortner (1969) and has been validated against other measures of Type "A" Behavior Pattern (TABP) (Bass, 1984). It consists of 14 items each comprising two adjectives or statements separated by a horizontal line of 12 Cm. one end of the line. represents the TABP response and the other represents TBBP response. Every subject is asked to mark the point for each item where he considers himself to lie between the two extremes. Scores are assigned to each item by measuring in 2 of Cm from the "B" end and the total score is derived by adding the scores of all 14 items. The maximum score for each items is 24 and the maximum total score is 336. Subjects scoring above the mean value (168) were considered to be "TABP" and subjects below this value were considered to be "TBBP". Zagazig Depression Scale (ZDS) (Fawzie et al., 1983) is a self- report scale of depres-

sion. It consists of 52 questions covering 17 items. The answer of each question is either "yes" or "No". Scores less than 10 were considered "not-depressed"; 11 - 20 "mild depression"; 21 - 30 "moderate depression" and 30 - 52 "severe depression". Arabic version of "MMPI" (Shaheen and El-Rakhawy, 1972) is commonly used in Egypt for the purpose of assessment of personality.

Statistical Methods:

The comparison of the groups was done by the Student's t test and Chi-square test.

Results: 1. Demographic characteristics of the coronary and the control group (Table 1) :
As shown in table (1) there is no significant difference between the two groups regarding "age", "sex distribution", "marital status", "marital satisfaction" and "education". There is significant difference between the two groups regarding "social class" where the upper social classes (I, II and III) are over represented among the coronary group than among the control group (66.8% versus 36.7% and x2 = 14.49, P< 0.05).

2. Results of psychometric scales: Table (2) illustrates the result of "Bortner Scale" which measures type "A" behavior. Comparing the two groups, the coronary group had significantly higher level of "Type ABP" than the control group where the mean + SD was 177.9 + 31.2 and 151 + 29.8 respectively and (t= 4.09, P < 0.01).

Table (3) shows the results of Zagazig Depression Scale (ZDS) for the two groups, it shows that the coronary group had significantly higher mean scores than the control group regarding the following items: Item n.o "3" (suicidal tendency) (t = 1.75 and P < 0.05). Item no. "5" (middle insomnia) (t = 3.43, P < 0.01), Item no. "6" "Late insomnia" (t= 1.887, P<0.05).

Table (4) illustrates the results of MMPI for the two groups. It shows that the coronary group had higher level of "Hypochondriasis" (HS) (t = 2.3S, P < 0.01 and "Social introversion" "Si" (t = 1.853, P < 0.05). There is no significant difference regarding other items of MMPI".

3. Comparison between coronary patients with "TABP" and coronary patients with "TBBP" (Table "5" and Figure I).

-As shown in table "5" patients with TABP are younger in age than patients with TBBP (t = 2.4, P <0.011), more educated (60% versus 11% and x2 = 20.3 and P<0.05).
-Type "A" patients are more depressed than type "B" patients (t = 4.12, P<0.0005).
-Figure "1" shows the MMPI profile of the two groups. It shows that type A patients had significantly higher mean scores than type "B" patients on the following scales (Hypochondriasis, Depression, Hysteria, Psychopathic deviation, Paranoia, Psychasthenia). However, type "A" patients had lower mean scores on "Social introversion" scale of MMPI.

Discussion:(1) Demographic characteristics of the coronary group and the control group:

In our study the mean age for coronary patients was (56.49) years and this is in agreement with the widely proved idea that the coronary heart disease is much more common amongst the late middle age subjects (Johnston et al., 1987). The percentage of male to female was 69% to 31% and this is in agreement with other studies which considered the male sex as one of the best consistent

Table (1) Demographic characteristics of the coronary group and the control group

	Cornaory group (n=90)	Control group (n=30)	X2 (t)	P
Age Mean±SD	56.49±4.93	56.4±7.2	0.134	NS
Sex Male(%) Female(%)	62 (69%) 28 (31%)	21 (70%) 9(30%)	1.0133	NS
Marital status Single (%) Married (%) Divorced (%) Widowed (%)	2 (2.22%) 63 (70%) 12 (13.3%) 13 (14.4%)	1 (3.33%) 21(70%) 3 (10%) 5 (16.66%)	0.385	NS
Marital satisfaction Harmonious (%) Non- harmonious (%)	46 (69%) 17 (31%)	16 (76.2%) 5 (23.8%)	0.0813	NS
Education Illiterate (%) Reads & writes (%) 2ry school (%) University (%) Post-graduate (%)	9 (10%) 40 (44.4%) 15 (16.7%) 21 (23.3%) 5 (5.6%)	8 (26.7%) 11 (36.7%) 4 (13.3%) 5(16.7%) 2 6.7%)	5.4	NS
Social class (occupation) I Professional (%) II Semi professional II Skilled IV Semi skilled (%) V Un skilled House wifes (%)	14 (15.6%) 23 25.6%) 23 (25.6%) 5 (5.6%) 10 (11.1%) 15 (16.7%)	2 6.7%) 5 (16.7%) 4 13.3%) 7 23.3%) 8 (26.7%) 4 13.3%)	14.49	<0.05

Table (2) Results of the Bortner of the coronary group and the control group

	Range of	MEan ±SD	t	P
Coronary group (n=90)	138-250	177.9±31.2	4.09	P<0.01
Control group (n=30)	94-208	151.9±29.8		

Table (3) Comparison of ZDS parameters between the coronary group and the control group

"ZDS" Items	Coronary group (n=90)	Control group (n=30)	t	P
1- Depression	1.62±1.11	1.67±1.21	0.19	NS
2- Guilt feeling	0.89±1.06	1.03±0.96	0.66	NS
3- Suicidal tendencies	0.91±1.2	0.50±0.90	1.73	<0.05
4- Initial insomina	1.16±0.86	1.20±1.034	0.23	NS
5- Middle insomina	1.21±0.88	0.60±0.77	3.43	<0.01
6- Late insomina	1.29±0.78	0.97±0.89	1.89	<0.05
7-Work and interests	1.34±0.81	1.43±0.86	0.51	NS
8- Retardation	1.44±1.11	1.17±1.21	1.16	NS
9- Irritability	1.42±1.03	1.37±0.96	0.26	NS
10-Pscychic anxiety	1.71±0.88	1.53±0.90	0.96	NS
11- Somatic anxiety	1.67±0.91	1.37±0.81	1.6	NS
12- Appetite	0.84±0.73	0.83±0.75	0.072	NS
13- Somatic symptoms	1.16±0.76	1.20±0.81	0.273	NS
14- Libido	0.90±0.77	0.90±0.80	0.00	NS
15- Hypochondriaisis	1.62±0.88	1.37±1.03	1.32	NS
16- Loss of insight	0.88±0.65	0.73±0.72	1.64	NS
17- Loss of weight	0.74±0.86	0.67±0.84	0.43	NS
Total score	20.82±8.84	18.43±7.74	1.33	NS

Table (4) Comparison of MMPI parameters between the coronary group and the control group

MMPI scales	Coronary group (n=90)	Control group (n=30)	t	P
L	5.47±2.82	4.5±2.35	0.632	NS
F	14.02±4.1	13.71±3.64	0.982	NS
K	13.81±4.03	12.7±3.55	0.97	NS
Hs	21.49±4.73	19.03±5.58	2.35	<0.01
D	26.41±5.68	25.47±6.66	0.75	NS
HY	24.58±5.1	23.8±6.07	0.697	NS
Pd	25.04±5.1	25.77±4.86	0.754	NS
M	25.89±4.38	26.17±5.43	0.283	NS
Pa	12.47±4.52	13.23±3.66	0.842	NS
Pt	31.58±5.23	31.97±5.34	0.351	NS
Sc	33.12±7.55	34.00±7.86	0.546	NS
Ma	21.46±3.56	21.03±3.47	0.555	NS
Si	34.54±4.31	36.33±5.33	1.853	<0.05

Hs (Hypochondriasis)
Pa (Paranoia)
D (Depression)
Pt (Psychasthenia)
Hy (Hysteria)
Sc (Schizophrenia)
Pd (Psychopathic deviation)
Ma (Mania)
Mf (Masculanity & femininity)
Si (Social introversion)

Table (5) Comparison between the coronary patients with "TABP" and the coronar patients with "TBBP"

	Cornaory group (n=90)	Control group (n=30)	X2 (t)	P
Diagniosis				
Recent infraction (%)	17 (56.7%)	13(43.3%)		
Old infarction (%)	24 (80%)	6 (20%)	4.13	NS
Angina pectoris (%)	22 (73.3%)	8 (26.7%)		
Age				
Mean±SD	55.78±4.8	58.11±3.94	2.4	<0.01
Sex				
Male(%)	44 (69.8%)	18 (66.7%)	0.008	NS
Female(%)	19 (30.2%)	9 (33.3%)		
Marital status				
Single (%)	1 (1.6%)	1 (3.8%)		
Married (%)	43 (68.3%)	20 (74%)	1.49	NS
Divorced (%)	10 (15.9%)	2 (7.4%)		
Widowed (%)	9 (14.2%)	4 (14.8%)		
Marital satisfaction				
Harmonious (%)	29 (67.4%)	17 (85%)	2.145	NS
Non- harmonious (%)	14 (32.6%)	5 (15%)		
Education				
Illiterate (%)	2 (4.8%)	6 (22.2%)		
Reads & writes (%)	22 (34.9%)	18 (66.7%)		
2ry school (%)	14 (22.2%)	1 (3.7%)	20.3	<0.005
University (%)	19 (30%)	2 (7.4%)		
Post-graduate (%)	5 (7.9%)	0 (0%)		
Social class (occupation)				
I Professional (%)	11 (17.5%)	3 (11.1%)		
II Semi professional	18 (28.6%)	5 (18.5%)		
II Skilled	15 (23.8%)	8 (29.6%)	2.28	NS
IV Semi skilled (%)	3 (4.8%)	2 (7.4%)		
V Un skilled	6 (9.5%)	4 (14.8%)		
House wifes (%)	10 (15.5%)	5 (18.6%)		
ZDS				
Total score (Mean±SD)	23.1±9	16.2±6.4	4.12	<0.0005

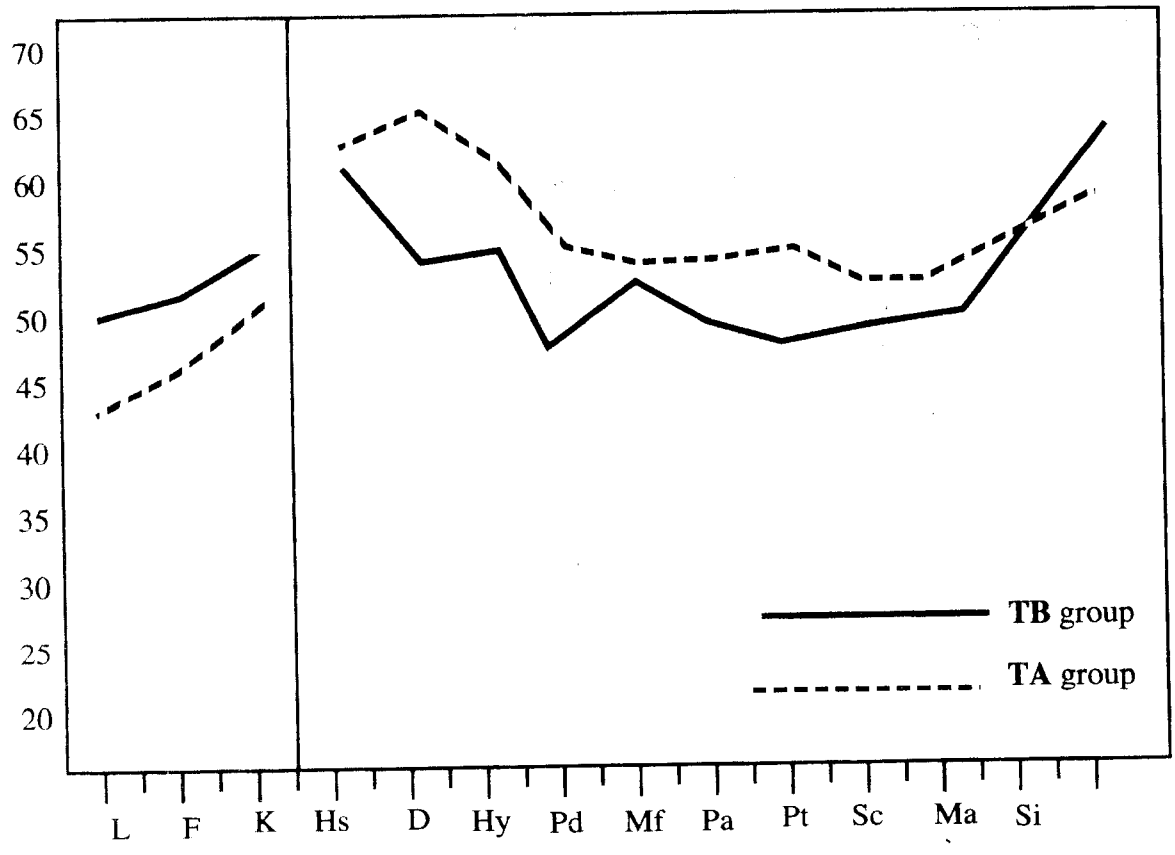

Fig (1)
Profile of MMPI parameters between the TABP group and the TBBP group among CHD cases
{(*) =p is significant}

and most documented risk factors for coronary heart disease (Rose and Shipley, 1986). As regard to marital status and marital satisfaction we found that 70% of the coronary group were married and 69% of the married subjects had harmonious marital relation. Haynes et al. (1980) stated that marital disharmony and disagreement are stressful conditions significantly associated with coronary heart disease. There was no significant difference between the coronary group and the control group regarding educational level. Liu et al. (1982) reported that high education is associated with increased incidence of coronary heart disease. However, Rosenman et al. (1975) found increased incidence of coronary heart disease with low education. The explanation of this difference among studies may be due to that the educational level don't always reflect real differences in patterns of life. A variation is found between studies relating social class to coronary heart disease. Some researchers reported that coronary heart disease is more prevalent in high social classes (Russek and Russek, 1976 and Theorell et al., 1984). other investigators

reported that the increase of coronary heart disease prevalence is more among lower social classes (Holme et al., 1977 and Marmot, 1983). In this study most coronary patients belonged to the upper three social classes and there was a statistically significant difference between the coronary and the control groups. An explanation of this discrepancy between different studies may be due to the fact that even the members of low social classes in the West "enjoy" certain factors of affluence which operate in the developing countries only in upper social classes (Groen, 1976).

(2) Results of psychometric scales:
(a) Bortner scale: on applying the bortner scale to measure TABP, we found that TABP was more prevalent among coronary group than among the control group (7O% versus 3O%) and the mean score of the coronary group was also significantly higher than the control group (177.9 + 31.2 and 151.9 + 29.8 respectively, t = 4.09 and P < 0.0l). SeifEl-Dawla et al. (1989) used structured interview to assess TABP in their study and found that TABP was more prevalent among coronary heart disease patients. This result is also in agreement with most of the cross-sectional studies (Moeda and Ito, 1990) and the prospective studies on patients with coronary heart disease (Orth-Gomer and Unden, 1990). Although the above mentioned studies confirmed the association of TABP with coronary heart disease, other studies found negative results (Skekelle et al., 1985). There are many reasons for these conflicting reports. Several different measures for TABP have been used that correlate only modestly with each other. Moreover the use of highly selected, non random samples with different sociodemographic data might explain these contradictory findings as regards the association of TABP and coronary heart disease. In the coronary group the ratio of "Type A" patients to "Type B" patients was 2.3: 1. In the literature the ratio of "TABP" to "TBBP" had been reported to lie between 1.77: 1 (Moss et al., 1986) to 3.56: 1 (Dembroski et al., 1985).

(b) Zagazig Depression Scale (ZDS): Although the mean total score of ZDS of the coronary group was higher than the mean total score of the control group, this difference was statistically insignificant (20.82 + 8.8 and 18.4 + 7.7, t = 1.33 and P = NS). Abu El-Hoda et al. (1987) found his coronary group to have higher scores on anxiety and depression.
Seif El-Dawla et al. (1989) found that angina pectoris group had the highest level of depression than other coronary groups. Jenkins (1976) concluded that both anxiety and depression seem consistently related to coronary heart disease risk. Lebovits et al. (1967) found that persons having an episode of coronary heart disease are shifted to higher scores on the anxiety, hypochondriasis, depression and obsessive scales.

(c) Personality profile (MMPI) results: In this study, the coronary group had higher scores an Hypochondriasis scale (HS) and lower scores on "Social introversion" (Si) scale than the control group. Many studies stressed the higher incidence of hypochondriasis and extroversion (Lovallo et al., 1980 and Bass, 1984). It is noticed that our study failed to identify other scales other than hypochondriasis and social introversion to be significantly higher in coronary heart disease patients. This is in contrast with other studies which identified other scales high in coronary heart disease patients as Depression (D), somatization, obsessional traits and Neuroticism (Lovallo et al., 1980 and Shekelle et al., 1991). However these studies used dif-

ferent scales and different control groups including normal healthy individuals while we used a group of hospitalized non- coronary patients from other departments as control group.

(3) Demographic and psychological characteristics of "Type A" coronary patients: In our study "Type A" coronary patients had younger age than type B coronary patients (55.78 + 4.8 and 58.11 + 3.94 respectively and t=2.4, P < 0.01). This result is in agreement with many studies (Stevens et al., 1984; Seif El-Dawla et al., 1984 and AbouEI-Hoda, (1987). An explanation of this finding is that young men may be characterized by being more competitive, ambitious and hard working which are major criteria for description of Type A behavior pattern. By dividing coronary patients according to age, in patients below 55 years the Type A: Type B ratio was 3.4: 1 patients and above 55 years the Type A : Type B ratio was 1.6: 1. This represents a negative relation of age with Type A behavior pattern. Moss et al. (1986) found that the TABP had an inverted -U-shaped relationship with age with the peak nearly at the age of 50 years.

As regards educational level we found that "Type A" coronary patients were more educated than "Type B" coronary patients (60% of TA patients were educated and only 11% of TB patients were educated, x2 = 20.3 and P<0.005). This result is in agreement with other investigators who found a positive relationship between TABP and educational level (Moss et al., 1986; AbouEI-Hoda et al., 1987 and Eaker et al., 1989).

We did not find significant difference between Type A coronary patients and Type B coronary patients regarding sex distribution, social class, martial status and martial satisfaction. As regards depression, we found that type A coronary patients were more depressed than Type B coronary patients where the mean±SD was (23.1 ± 9 and 16.2 ± 6.4 and t = 4.12, P < 0.0005), this finding is in agreement with many studies which reported a positive relationship between TABP and depression (Price, 1982 and MendesDeleon et al., 1991). As regards personality profile of Type A patients and type B patients, we found that type A coronary patients-had higher scores on "hypochondriasis", "depression", "hysteria", "psychopathic deviation" and "psychasthenia" scales of MMPI and they had lower scores on "social introversion" scale of MMPI which means that type A patients were more extroverts than "Type B" patients. AbouEl-Hoda et al. (1987) used middle sex hospital questionnaire and found that type A patients to have significantly higher scores than type B patients on anxiety, depression, obsessive and somatic scales. Also they found that TA patients to have higher scores on Neuroticism and extroversion scales of Eysenk Personality Inventory. other investigators described Type A patients as more anxious, more aggressive, more impulsive, more extra-punitive, more socially insecure, more extroverts and more neurotic (Eysenk and Fulker, 1982). So our results confirm the higher association between Type A behavior pattern and the coronary heart disease in Egyptian patients and we found that TABP is more prevalent among the young, highly educated coronary patients and it is associated with higher psychiatric morbidity.

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نمط السلوك "أ" لدى مرضى الشريان التاجى

تهدف هذه الدراسة الى البحث فى مدى وجود نمط السلوك "أ" بين مرضى قصور الشريان التاجى و كذلك العوامل الديموجرافية و الإكلينيكية و النفسية التى ترتبط بوجود نمط السلوك "أ". وقد شملت هذه الدراسة و التى أجريت بمستشفى الزقازيق الجامعى ٩٠ مريضا بقصور الشريان التاجى مقسمين الى ثلاث مجموعات متساوية من المصابين بالذبحة الصدرية و احتشاء عضلة القلب حديثا و قديما بالاضافة إلى مجموعة ضابطة من ٣٠ مريضا بأمراض أخرى غير قصور الشريان التاجى من بين مرضى الأقسام الباطنية و الجراحة بالمستشفى. وقد تم فحص جميع حالات الدراسة سريريا ومعمليا كما تم تقويمها من الناحية النفسية و إشتمل التقويم النفسى للحالات على عدة مقاييس باستخدام "المقابلة النفسية" و "مقياس الزقازيق للأكتئاب و اختبار "الشخصية المتعدد الأوجه و اختبار "بورتنر للتقييم الذاتى المختصر". توصلت الدراسة الى عدم وجود اختلاف فى النواحى الديموجرافية و الاجتماعية بين مجموعة المرضى والمجموعة الضابطة. وكان نمط السلوك "أ" أكثر إنتشارا بين مرضى قصور الشريان التاجى عنه بين المجموعة الضابطة (٧٠٪ مقابل ٣٠٪).
وكان مرضى قصور الشريان التاجى اصحاب نمط السلوك "أ" يتميزون عن اصحاب نمط السلوك "ب" بأنهم أصغر سنا و أكثر تعليما و أكثر إكتئابا و حصلوا على درجات عالية ذات دلالة احصائية على مقاييس "توهم المرض - الاكتئاب - الهستيريا - الانحراف السيكوباتى - السيكاثينيا - والانبساطية - فى اختبار الشخصية المتعددالأوجه.

Epilepsy

Features Helpful In Differentiating Between Convulsive Psychogenic & Convulsive Epileptic Seizures:

	Epileptic Seizure	Syncope
Precipitant	Unsual none	Often an emotional precipitant
Circumstances: -In Sleep -When alone	 Common Common	 Rare Less Common
Prodorma	Rare	Common
Onset	Usually abrupt. May have a short aura	May be gradual with increasing emotional symptoms
Cry at Onset	Common	Unusual
Vocalization	During automatism only	Common during seizure
Motor Phenomena	Stereotyped, usually both tonic and clonic phase. Clonic movements slow as seizure continues	Variable. Often tonic or clonic only. Clonic components vary in amplitude and frequency during the attack. Pelvic thrusting. Pseudo clonic movements
Injury	Common	Rare
Incontinence	Common	Unusual
Tongue Biting	Common	Rare
Consciousness	Usually totally lost in convulsive seizures	Variable, often possible to communicate during an attack
Restraint	No effect	May resist, sometimes teminates an attack
Duration Termination of Attack	Unusally short (but with automatism sometimes longer). Confusion, drowsiness or sleep common	May be gradual, often with emotional display confusion, drowsiness or sleep unusual

Ciba Geigy