Temperament and Character Profiles in Young Adult Men with Essential Hypertensiyon

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ABSTRACT

Objective: Relationship among the hypertension and personality is still controversial. In this study we aimed to determine the temperament-character profiles of subjects with essential hypertension [EH], and also to compare them with healthy individuals.

Method: The study population consisted of 70 male subjects with EH, and matched healthy controls [N=70]. All participants were asked to complete the Temperament and Character Inventory [TCI], the State-Trait Anxiety Inventory [STAI] and the Hamilton Depression Rating Scale [HDRS].

Findings: The subjects with essential hypertension scored significantly higher in the dependency and compassion subscales of TCI, but significantly lower in self-forgetfulness and resourcefulness subscales compared to controls.

Discussion and Conclusion: These results may suggest that some personality characteristics, especially over dependency and compassion, and low resourcefulness and self-forgetfulness, may predispose young adults to EH.

Keywords: hypertension, temperament, character

ÖZET

GENÇ YETİŞKİN ERKEK HİPERTANSİYONLU HASTALARDA MİZAÇ VE KARAKTER ÖZELLİKLERİ

Amaç: Hipertansiyon ve kişilik arasındaki ilişki hala tartışmalıdır. Bu çalışmada biz esansiyel hipertansiyonlu [EH] bireylerin mizaç ve karakter profilini tesbit etmeyi ve onları sağlıklı bireylerle karşılaştırmayı amaçladık.

Yöntem: Esansiyel hipertansiyonlu 70 erkek ve eşleştirilmiş 70 sağlıklı birey çalışmaya alındı. Bütün katılımcılara Mizaç Karakter Envanteri [TCI], Durumluk-Sürekli Anksiyete Ölçeği [STAI] ve Hamilton Depresyon Derecelendirme Ölçeği [HDRS] uygulandı.

Bulgular: Esansiyel hipertansiyonlu hastalarda kontrol grubuna gore TCI'nin alt skalalarından bağımlılık ve acıma alt ölçek puanları yüksek, beceriklilik ve kendilik kaybı alt ölçek puanları ise düşük bulundu.

Tartışma ve Sonuç: Bu sonuçlar bâzı kişilik özelliklerinin özellikle de yüksek bağımlılık ve merhametlilik ile düşük kendilik kaybı ve beceriklilik özelliklerinin genç erişkin erkeklerde esansiyel hipertansiyona yatkınlık oluşturabileceğini ileri sürmektedir.

Anahtar Kelimeler: hipertansiyon, mizaç, karakter

OBJECTIVE

Essential hypertension [EH] was one of the seven classic psychosomatic diseases for which psychoanalytical researchers in the 1950s proposed a specific psychodynamic etiology. Today, this disease is classified under the category "psychological factors affecting medical condition" in the Diagnostic and Statistical Manual of Mental Disorders, 4th edition [DSM-IV]. Psychological factors may predispose to, initiate, or maintain illness. One of them also is personality traits. These traits can be subthreshold for an Axis II disorder or represent another pattern that has been demonstrated to be a risk factor (Shapiro 2005).

For the last thirty years "Type A personality" described as personality that is eager to success, impatient and unable to manage anger has been accused of predisposition to cardiovascular diseases (Shapiro 2005, Jovanovic et al 2006). Role of Type A personality on development of hypertension was evaluated in a study on 3308 healthy young individuals that have been followed for 15 years (Yan et al 2003). This study showed that urgency-impatience and hostile feelings that are characteristics of Type A personality could predict the development of hypertension. Several studies claimed no association between Type A personality and hypertension (Schroeder et al 2000, Friedman et al 2001). Other than Type A personality, introverted-extroverted personalities described by Eysenck personality theory have also been studied for their effect on blood pressure. These studies showed that introverted or extroverted personality characteristics were not determinant on blood pressure; (Kohler et al 1993); but blood pressure of introverted individuals were disparate at home or in the hospital (Hozawa et al 2006).

Although there are studies on personality patterns which are regarded as psychosocial factors for essential hypertension, their results are conflicting. For overcoming these conflicts a tremendous personality model should be used to provide comprehensive insight into human personality at multiple levels of analysis, including the genetics of personality, neurobiological foundations of behavior, the cognitive emotional structure and development of personality, the behavioral correlates of individual differences in personality dimensions, and the interactions of personality constellations with developmental factors in relation to the vulnerability to psychiatric disorders. The dimensional approach of the Psychobiological Model of Personality by Cloninger investigates seven personality traits referring to temperament and character and uses the Temperament and Character Inventory [TCI] as an instrument of evaluation. In this instrument there are four dimensions of temperament with genetic components ranging from 40% to 60%, three dimensions of character with genetic components ranging from 10% to 15%, and a non-random environmental component ranging from 30% to 35% (Cloninger 1987, Cloninger et all.1993, Cloninger 1994). Also, specific personality structures are known to be influenced by specific monoamine neurotransmitter turnover (Reif and Lesch 2003). Novelty seeking has been connected with low basal dopaminergic activity, harm avoidance with high serotonergic activity, reward dependence with low basal noradrenergic activity, and persistence with glutaminergic activity. The relationship between personality traits and neurotransmitter tone has been further supported by genetic, functional neuroimaging and biochemical studies. (Cloninger 1987, Cloninger et al 1993, Cloninger 1994, Mitropoulou et al 2003, O'Gorman et al 2006, Fidler et al 2007).

The etiology of EH is unknown. As it is accepted, EH may have genetic components and be affected by various environmental factors. Therefore, activation of sympathetic nervous system is important determinants of elevation of blood pressure. Primary neurotransmitter of postganglionic neurons of sympathetic system is norepinephrine. Also, temperament is known to be influenced by specific neurotransmitters (Shapiro 2005). If biogenetic temperament and acquired character profile associated with EH can be identified, this association will provide clinicians with more useful information for a psychiatric evaluation, and this information may be helpful in the treatment planning. Consequently, in this study, in the context of Psychobiological Model of Personality by Cloninger, by clinical sampling we aimed to determine whether temperament and character profile of young adult males with essential hypertension differed from healthy individuals.

METHOD

Sampling:

Study was conducted in GMMA Department of Internal Medicine. A total of 70 male patients diagnosed as hypertension were recruited into the study. Diagnosis of essential hypertension was established by history, physical examination, complete blood count, urinalysis, routine biochemical analysis, telegraphy, electrocardiography, echocardiography and fundoscopy and series of blood pressure measurements taken in the hospital at sitting position within 3 days. Diastolic blood pressure [DBP] 90 mmHg and over or systolic blood pressure [SBP] 140 mmHg and over was

Tablo1: Socio-demographic characteristics of subjects with essential hypertension and healthy controls

Socio-demographic characteristics	Patients (N=70)	Controls (N=70)	Statistics
Age (years)	23.4?0.4 (20-33)	23.4?0.4 (20-33)	t=.000 p=1.000
Educational level			
Primary education	19 (%27.1)	19 (%27.1)	X2=.039
High school	28 (%40.0)	27 (%38.6)	p=.980
University	23 (%32.9)	24 (%34.3)	
Marital status			
Single	57 (%81.4)	60 (%85.7)	X2=.468
Married	13 (%18.6)	10 (%14.3)	p=.494
Economic status			
Low	35 (%50.0)	41 (%58.6)	
Medium	19 (%27.1)	27 (%28.6)	X2=.2.459
High	16 (%22.9)	9 (%12.9)	p=.292
Living place			
Village	8 (%11.4)	11 (%15.7)	
Town	11 (%15.7)	8 (%11.4)	X2=.947
City	51 (%72.9)	51 (%72.9)	p=.623
Family type			
Nuclear family	57 (%81.4)	56 (%80.0)	X2=.046
Patriarchal	13 (%18.6)	14 (%20.0)	p=.830

Tablo2: Personality traits according to TCI in subjects with essential hypertension and healthy controls

TCI	Patients [Mean ? SD] [N=70]	Controls [Mean ? SD] [N=70]	t / Z	p
Novelty seeking	18.1?3.9	18.4?5.4	.541†	.588
Exploratory excitability	6.4?1.9	6.5?1.7	.239‡	.811
Impulsiveness	3.6?2.0	3.9?2.5	.911‡	.364
Extravagance	4.7?1.9	4.4?1.9	.185†	.853
Disorderliness	3.4?1.4	3.4?1.8	.250‡	.803
Harm avoidance	17.1?6.8	16.7?5.8	.385†	.701
Anticipatory worry	4.8?2.4	5.1?2.1	.1232‡	.218
Fear of uncertainty	4.3?1.7	4.1?1.6	.533‡	.594
Shyness with strangers	3.1?2.3	3.2?2.3	.349‡	.727
Fatigability and asthenia	4.8?2.4	4.1?2.0	1.824†	.070
Reward dependence	17.9?3.0	17.2?2.7	1.516‡	.130
Sentimentality	10.4?1.4	10.8?1.2	1.870‡	.061
Attachment	4.6?1.9	4.2?1.8	1.418‡	.156
Dependence	2.9?1.3	2.1?1.3	3.149‡	.002*
Persistence	5.0?1.6	5.0?1.8	.140‡	.889
Self-directedness	28.6?6.0	28.6?6.1	.028†	.978
Responsibility	5.2?1.7	4.7?1.9	1.648‡	.099
Purposefulness	5.6?1.3	5.4?1.3	.817‡	.414
Resourcefulness	3.1?1.2	3.5?1.2	1.978‡	.048**
Self-acceptance	6.2?2.6	5.9?2.3	.686†	.494
Congruent second nature	8.3?1.9	8.8?1.9	1.687†	.094
Cooperativeness	30.4?5.7	28.8?5.7	1.643†	.103
Social acceptance	6.0?1.4	6.0?1.7	.096‡	.924
Empathy	4.3?1.4	4.4?1.3	.149‡	.881
Helpfulness	4.8?1.4	4.4?1.4	1.891‡	.059
Compassion	8.0?2.5	6.9?2.5	3.162‡	.002*
Integrated conscience	7.1?1.2	7.0?1.3	.409‡	.683
Self-transcendence	17.2?5.8	19.0?5.6	1.851†	.066
Self-forgetfulness	5.4?2.1	6.3?2.2	2.250†	.028**
Transpersonal identification	5.0?2.1	5.3?2.1	.858†	.393
Spiritual acceptance	6.7?2.9	7.4?2.9	1.262†	.209

TCI: Temperament and Character Inventory; *p<.01
**p<.05 † Student t test ‡ Mann-Whitney U test

accepted as hypertension.

For control group, seventy males selected from volunteers who had been hospitalized for normal health checkups or who were undergoing a regular company medical checkup. They did not have a family history of hypertension, any physical or psychological symptom and did not receive any psychological therapy. In addition, they had a SBP of less than 130 mmHg and DSP of less than 85 mmHg. A family history of hypertension was defined as prior diagnosis of hypertension in grandparents, uncles, aunts, parents or siblings.

Systolic and diastolic blood pressures were measured by trained physicians using a standard mercury sphygmomanometer on the right arm of seated participants after at least a 5-min rest as the average of 3 seated. Readings were made to the nearest 2 mm Hg, and diastolic blood pressure was taken as the phase V Korotkoff sound. As personality pattern may differ by age, subjects whose ages were in the range from 20 to 35 were selected and education period of minimum 8 years was asked in order to be able to fill the psychometric tests. In addition, healthy individuals that formed the control group were matched with hypertensive patients in terms of age and educational level. Approval of institutional ethics committee and informed consents of the subjects were obtained.

Assessment tools:

Assessment tools were performed to subjects included into the study. Interview was accomplished in a well-illuminated and silent room in GMMA Internal Medicine Clinic within one session while blood pressure levels were normal.

1. Temperament and Character Inventory [TCI]: It is a self report scale consisted of 240 items that are responded as "true" or "false". It can be applied to individuals 17 years old or older. It consists of seven main scales formed by four dimensions of temperament [novelty seeking, harm avoidance, reward dependence and persistence] and three dimensions of character [self-directedness, cooperativeness and self-transcendence] and 24 subscales of these scales. It has been commonly used in different areas of psychological and psychiatric research and practice within the last 10 years. It was developed by Cloninger et all. (Cloninger et all. 1993) and validity and reliability studies of the Turkish version have been conducted (Köse et al. 2004, Akar et all. 2005). It has been used in various studies (Boz et al 2004)

2. State-Trait Anxiety Inventory [STAI] The STAI was developed by Spielberger et al in 1970 (Spielberger et all. 1970) and the Turkish version (reliability and validity conducted by Öner and Le Compte in 1985) has 40 items (Öner et al 1985). The first 20 questions measure state anxiety and the remaining 20 questions measure trait anxiety, including the general anxiety tendency of the individual. Total score in both sections < 42 is considered normal and scores > 42 indicate high anxiety.

3. Hamilton Depression Rating Scale [HDRS]: This scoring questionnaire was first developed by Hamilton et al in 1959 (Hamilton 1959). The validity and the reliability of Turkish HDRS scale scores were demonstrated by Akdemir et al in 2001 (Akdemir 2001). This scale, which consists of 17 questions and has an upper score limit of 53, measures the depression levels of patients. Scores less than 8 are considered normal, scores between 8 and 16 indicate that patients may have mild to moderate depression, and scores equal to and greater than 17 signs that patients may be experiencing major depression.

Statistics:

Sociodemographic differences between subjects with essential hypertension and controls were analyzed with X2 test variables for categorical variables, while Student t test and Mann Whitney U test are used for continuous variables of TCI scales, STAI and HDRS. Associations between the assessment tools were examined with Pearson correlation coefficients. Significance level of tests was defined as "p≤ .05".

FINDINGS

One to one matching was established when age [p=1.000] and level of education [p=.980] of hypertensive patients were compared to healthy individuals. Both groups were similar in terms of marital status, economic status, living place and family type [p>.05] [Table 1]. Mean Hamilton Depression scores were significantly higher in the patients than in those of the controls [respectively; 4.6?6.5, 2.1?3.9; Z=3.294, p=0.001] [p<.01], but mean trait anxiety [respectively; 43.7?9.5, 42.0?8.8; t=1.081, p=0.282] and state anxiety [respectively; 39.8?9.9, 37.4?7.5; t=1.629, p=0.106] scores were not different between two groups [p>.05].

Comparison of seven main dimensions and 24 subscales of TCI of the two groups is given in Table 2. Mean scores for dependence subscale of reward dependence and compassion subscale of cooperativeness of patients were higher compared to control group [p<.01]; but mean scores of self-forgetfulness subscale of self-transcendence and resourcefulness subscale of self-directed-

ness were lower than the control group [p<.05]. No difference was observed between the groups in terms of main dimensions and other subscales [p>.05]. The dependence scores were not related with depression, state and trait anxiety and socio-demographic characteristics [p>.05]. However, the compassion scores were negatively correlated with depression, state and trait anxiety scores [respectively; r=.285, p=.017; r=.242, p=.043; r=.351, p=.003], the resourcefulness scores were negatively correlated with trait anxiety and depression [respectively; r=.322, p=.007; r=.259, p=.030] and the self-forgetfulness scores were also negatively correlated with trait anxiety scores [r=.449, p=.0001].

DISCUSSION

This is a cross-sectional study that presents the comparison of the temperament and character profiles of patients with essential hypertension with healthy individuals that have been one to one matched for age and level of education and also comparable in terms of other sociodemographic data. Study included a narrow range of age and only male gender in order to avoid the effects of age and gender on temperament and character profiles. Up to our knowledge, it is the first study that evaluates temperament and character profiles of patients with essential hypertension on the basis of the personality theory of Cloninger.

In the study, main dimensions of temperament and character in hypertensive patients were similar to healthy individuals but subdimensions of dependence, compassion, resourcefulness and self-forgetfulness were different. Scores of dependence and compassion were higher than healthy individuals whereas scores of self-forgetfulness and resourcefulness were lower. Contrary to compassion, resourcefulness and self-forgetfulness scores, dependence scores were not related with depression, state and trait anxiety and socio-demographic characteristics. Although character and temperament traits of TCI are highly reliable and rather stable traits, some dimensions like harm avoidance are transiently increased when individuals are agitated or depressed (Köse 2003). The dependence is a subdimension of temperament. Temperament dimensions are usually affected by genetic components ranging from 40% to 60% while character dimensions are affected from 10% to 15% (Reif and Lesch 2003). So, it may be speculated that the dependence subdimension is a relatively stable construct in subjects with essential hypertension. Individuals with high scorers on dependence subscale are dependent on emotional support and approval from others. They care deeply how other people regard them, and may even seek or stimulate overprotection and dominance in others. They may be reluctant to make decisions or do things on their own. Dependent individuals seek support or protection and thus usually go out of their way to please other people. As a consequence, they are easily hurt by criticism and disapproval. Dependent individuals tend to be preoccupied with fears of being abandoned. Thus, they are very sensitive to social cues and highly responsive to social pressure.

Compassion, resourcefulness and self-forgetfulness subdimensions of character are associated with depression and anxiety so that they may be thought to be relatively unstable personality characteristics. Although their instability, individuals who score high on compassion subscale may be described as compassionate, forgiving, charitable, and benevolent. They do not enjoy revenge and usually do not try to get even if they were treated badly. Low scorers on the resourcefulness subscale impress others as helpless, hopeless, and ineffective. These individuals have not developed skills and confidence in solving problems and thus feel unable and incompetent when faced with obstacles. They tend to wait others to take the lead in getting things done. Low scorers on the self-forgetfulness subscale may be characterized by their tendency to remain aware of their individuality in a relationship or when concentrating on their work. These individuals are rarely deeply moved by art or beauty (Köse 2003, Cloninger 1987, Cloninger 1994). Higher compassion, and lower resourcefulness and self-forgetfulness scorers in patients with essential hypertension also support their higher dependence scorers.

Main limitation of this study is recruitment of only young adult men and hence inability to generalize the results to females and other age groups. Also, number of the sample group was relatively small. At present it remains unclear if the small sample would alter the results vis–a–vis the relative predictive capacity of this model. Another limitation of the study is cross-sectionalist.

CONCLUSION

As for conclusion; when young males with essential hypertension are compared to healthy individuals, main temperament and character dimensions of TCI are indifferent; but subscales of dependence, compassion and self-forgetfulness are different. In addition, dependence subdimension is relatively a stable construct in subjects with essential hypertension. These findings suggest that some features of temperament and character, particularly excess dependence and com-

passion and lower tendency of self-forgetfulness may cause predisposition to essential hypertension in young male adults.

Studies in the future require recruitment of subjects from both genders with different age groups. Response to treatment should be studied in prospective design.

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