

Açıklanamayan çarpıntı nedeniyle elektrofizyolojik çalışma yapılan hastalarda yaşam kalitesi ve kaygı düzeylerinin değerlendirilmesi

Assessment of quality of life and anxiety levels in patients who underwent electrophysiologic study due to unexplained palpitations

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ÖZET

Amaç: Belgelenememiş çarpıntı atakları nedeniyle yapılan elektrofizyolojik çalışma (EFÇ) sonucu normal veya anormal olan hastaların yaşam kalitesi ve kaygı düzeyleri açısından karşılaştırılması amaçlandı.

Çalışma planı: Çalışmaya çarpıntı yakınması olan, aritmileri elektrokardiyografi (EKG) ile belgelenmemiş ve EFÇ yapılan 128 hasta alındı. EFÇ ile supraventriküler taşikardi (SVT) saptanan hastalar ile EFÇ sonucu normal olan hastalar Dünya Sağlık Örgütü yaşam kalitesi ölçeğinin 26 maddelik kısa formu ve durumluk-sürekli kaygı envanteri ile değerlendirilerek yaşam kalitesi ve kaygı düzeyi açısından karşılaştırıldı.

ABSTRACT

Objectives: To compare the quality of life and anxiety levels of the patients with normal and abnormal results detected during an electrophysiologic study (EPS) that was performed due to undocumented episodes of palpitations.

Study design: The patients (n=128) with complaints of palpitations who underwent EPS because their arrhythmias could not be documented were included in the study. The quality of life and anxiety levels of patients with abnormal EPS results were compared to those with normal results using the 26-item short form of the World Health Organization quality of life scale and state-trait anxiety inventory.

Bulgular: Tanısal EFÇ işlemi sonucunda 72 hastada SVT saptandı. SVT'li grubun yaşam kalitesi skorları EFÇ'leri normal gruptakilere göre anlamlı derecede daha kötü bulundu ($p=0.000-0.001$). Aynı şekilde SVT'li hastalarda kaygı skorları da EFÇ'leri normal gruba göre daha yüksekti ($p=0.000$). Çok değişkenli regresyon analizinde yaş, bedensel alan yaşam kalitesi, ruhsal alan yaşam kalitesi, durumluk kaygı ve sürekli kaygı SVT'nin bağımsız öngördürücüleri olarak bulundu.

Sonuç: Çarpıntı yakınması SVT'ye bağlı olan hastalarda kaygı düzeyi daha yüksek ve yaşam kalitesi de daha düşük bulunmuştur. Klinik uygulamada çarpıntı yakınması olan hastalar değerlendirilirken fark edilen psikiyatrik semptomların altta yatan aritmiye sekonder olabileceği de göz önünde bulundurulmalıdır.

Abbreviations:

WHO World Health Organization
EPS Electrophysiologic Study
EHRA European Heart Rate Association
ECG Electrocardiography
SVT Supraventricular tachycardia

Mutual interaction between psychological status, and cardiovascular state has been demonstrated in many disease states.^[1] Supraventricular arrhythmias including atrial fibrillation can significantly impair quality of life, and psychological state of the patient.^[2] Palpitations can be related to cardiac, and non-cardiac causes. In nearly 40 % of the patients who presented with palpitations,

Results: SVT was found in 72 patients by diagnostic EPS. Quality of life scores were significantly poorer in the SVT group than those of the normal EPS group ($p=0.000-0.001$). Likewise, the anxiety scores of the patients in the SVT group were higher than those of the group with normal EPS findings ($p=0.000$). Age, physical quality of life, psychological quality of life, state- and trait anxiety were found to be independent predictors of SVT in multivariate regression analysis.

Conclusion: The level of anxiety was found to be higher and quality of life relatively lower in patients with palpitations due to SVT. In clinical practice during evaluation process of the patients with palpitations, it should be kept in mind that recognized psychiatric symptoms may be secondary to an underlying arrhythmia.

cardiac causes, and in 30 % of them psychiatric etiologies have been reported.^[3] Palpitations can induce anxieties, and quality of life or conversely anxiety, and lower quality of life can trigger palpitations. Impaired state of anxiety has been reported in approximately 25 % of the patients with supraventricular tachycardia (SVT).^[4] On the other hand, episodes of SVT can adversely affect psychological state, and quality of life. Predominant side of this mutual interaction is not known clearly.

In our electrophysiologic (EPS) study, we aimed to compare the quality of life, and anxiety levels of the patients with

normal EPS results, and those with evidence of SVT

PATIENTS AND METHOD

Study population

The study included 128 patients who had undergone EPS without documented arrhythmia by electrocardiography (ECG) or rhythm Holter, but demonstrated unrelieved, and unexplained palpitations refractory to medical treatment. Patients were included in the study provided that their palpitations were independent from exertion, and lasted at least one minute with an abrupt termination. Patients with thyroid dysfunction, documented psychiatric disease, pregnancy, anemia, structural heart disease, alcohol dependence, important concomitant chronic disease, and individuals who were using antiarrhythmic (calcium channel blockers, beta blockers or other antiarrhythmic drugs) or psychiatric drugs peri- EPS period were excluded from the study. All patients underwent detailed physical, electrocardiographic, echocardiographic examinations, 24-hour rhythm Holter monitorization, and routine laboratory tests. The study was approved by the local ethics committee, and written approval of all patients were obtained.

Electrophysiologic study

In all patients quadripolar electrode catheters (Medtronic, Inc., Minneapolis, MN, USA) were placed in the right atrium,

His bundle, and right ventricular apex. After measurement of sinus node recovery time, Wenckebach (VA) conduction time, AH, and HV intervals, programmed atrial, and ventricular stimulations were performed (EP Tracer, CardioTek, Maastricht, Netherlands). Episodes of supraventricular or ventricular tachycardia lasting at least more than 30 seconds were considered as positive findings requiring EPS. Complaints of the patients whose episodes continued for less than 30 seconds at least in three episodes were interrogated. Arrhythmic episodes which were likened to their previous palpitations were regarded as positive history of SVT, and VT. Others were evaluated as negative findings consisting of nonspecific EPS-induced arrhythmias. In all patients in whom arrhythmias could be triggered, atrial stimulation procedure was repeated after intravenous administration of 1mg atropine. In arrhythmia inducible patients, radiofrequency ablation was performed in another session if deemed necessary.

Survey forms

A 26-item abbreviated version of the World Health Organization Quality of Life Assessment (WHOQOL-BREF), and The **State-Trait Anxiety Inventory (STAI)** were applied on all patients.^[5,6] The validity of the Turkish version of WHOQOL-BREF form which was developed by WHO has been demonstrated in 1998 by Eser et al.^[7] The validity of the Turkish version of STAI

questionnaire forms which we have been using to assess level of anxiety has been demonstrated in 1977 by Öner et al.^[8]

Statistical Analysis

All statistical analyses were performed using SPSS 15.0 (SPSS Inc, Chicago, IL, USA) software package. Categorical variables were presented as frequencies or percentages, and continuous variables as mean \pm standard deviation.

Continuous variables in the groups were compared using Student's *t* test, and categorical variables by *chi*-square test. In the assessments of correlations between continuous variables, Pearson method was used for parametric, and Spearman method for non-parametric data. Multilinear regression analysis was performed to determine independent predictors of SVT. $P < 0.05$ was considered as statistically significant.

Table 1. Baseline characteristics of SVT, and normal EPS groups

	SVT group	Normal EPS group	<i>p</i>
Age (mean \pm SD)	42.87 \pm 10.22	43.91 \pm 8.81	0.54
Gender (Men/Women)	33 / 39	28 / 28	0.64
Marital status (%)	8.3 / 83.3 / 8.3	14.2 / 80.3 / 5.3	0.23
Educational level**	13.8 / 51.3 / 30.5 / 4.1	16.1 / 53.5 / 28.5 / 1.7	0.53

SVT: Supraventricular tachycardia; EPS: Electrophysiologic study ; SD: Standard deviation

• Single/ Marriage/ Widow ; **: Illiterate / Primary-Secondary school / Lycée/ High school

Table 2. Quality of life, and anxiety parametres in the SVT, and normal EPS groups

	SVT group (mean \pm SD)	Normal EPS group (mean \pm SD)	<i>p</i>
Physical QoL	8.80 \pm 1.13	10.39 \pm 1.98	0.000
Psychological QoL	9.27 \pm 1.68	10.83 \pm 2.68	0.000
Social QoL	9.76 \pm 2.28	11.08 \pm 2.65	0.004
Environmental QoL	9.06 \pm 1.41	10.33 \pm 2.47	0.001
State- anxiety	38.86 \pm 5.95	31.14 \pm 5.86	0.000
Trait-anxiety	38.07 \pm 5.85	34.17 \pm 5.52	0.000

QoL, quality of life; SVT: Supraventricular tachycardia; EPS: Electrophysiologic study ; QoL: Quality of life ; SD: Standard deviation.

RESULTS

The study included 61 male (47.7 %), and 67 female (52.3 %) patients. As a result of diagnostic EPS, SVT was detected in 72 (56 %) patients. SVTs consisted of atrioventricular nodal reentry tachycardia (n=40; 56 %), ventricular reciprocant tachycardia (n=21; 29 %), atrial tachycardia (n=6; 8 %), and atrial flutter (n=5; 7 %). When patients with SVT as

detected by EPS were compared to cases with normal EPS findings, any significant intergroup difference as for age, gender, educational level, and marital status of the patients could not be found (Table 1). WHO quality of life, and WHOQOL-BREF scores of both groups are presented in Table 2. As seen in Table 2, quality of life scores of the SVT group were found to be significantly worser than those of the normal EPS group ($p = 0.000-0.001$).

Similarly, anxiety scores of the patients with SVT were higher than those of the EPS group (Table 2). When groups were evaluated individually according to genders, any significant intergroup difference was not detected between distribution of anxiety scores. In the correlation analysis, in the SVT group a negative correlation was detected only between educational level, and anxiety parameters ($r=-255$, $p=0,008$). In the group with normal EPS results, any correlation could not be demonstrated between variables. In the multivariate regression analysis age, physical quality of life, psychological quality of life, state- , and trait anxiety were found to be independent predictors of SVT (Table 3).

DISCUSSION

The association between psychological state, and cardiovascular reactivity has been revealed in the pathogenesis of many cardiovascular diseases including coronary artery disease, and hypertension. As is seen in distinct variations in blood pressures, and heart rates, a significant correlation exists between anxiety level, and arrhythmias experienced by the patient.^[1,9] Quality of life manifests total well-being of the patient including his/her physical, and psychosocial aspects.[5] In our study, higher anxiety levels, but lower quality of life scores were found in patients with SVTs detected during EPS. Although supraventricular arrhythmias are not generally life-threatening conditions,

they can exert adverse effects on the quality of life, and state- anxiety.^[10] The severity of these effects varies with the frequency, duration, and symptoms emerging during arrhythmic attacks. In consideration of referrals to outpatient, and emergency clinics, drug therapies, and labour loss, SVTs incur a greater economical burden on public expenses. . In patients with normal EPS results, probably sinus tachycardia developed as a consequence of anxiety state is perceived as palpitations by the patient.^[11] In our study even though EPS recordings were positive as for the presence of SVTs in higher (56 %) than anticipated percentage of the patients, it is still close to the incidence reported in a recent study performed by Vallès et al. ^[12] In the cited study, SVTs could be triggered during EPSs in 50 % of the patients with complaints of palpitations but without documented arrhythmias. Also in our study, detection of a similar rate for SVTs is a naturally anticipated finding, when we consider that our patient population consisted of cases who described typical medical history, and symptoms specific to SVT.

Besides in our study, the term “undocumented” refers to inability to demonstrate arrhythmia in ECG, and Holter recordings. In a RUP study, Giada et al.^[13] demonstrated lower diagnostic accuracy of Holter monitorization in the detection of SVTs when compared with implantable cardiac monitors. In other words,

conventional methods as Holter monitorization, and ECG can prove inadequate in establishing a diagnosis of SVT in patients with unexplained complaints of palpitation. Therefore European Heart Rhythm Association (EHRA) as a class IIa indication, recommended use of implantable cardiac monitors in patients who frequently report unexplained episodes of palpitation.^[14]

However in our country implantable cardiac monitors are seldom applied, and event recorders are used in a limited number of centers. In our study, It can be said that, if event recorders, and implantable cardiac monitors could be used in our study, arrhythmias could be documented in some of our patients, and the rate of EPS positivity could be lower as would be expected.

Table 3. Independent predictors of SVT in the multivariate regression analysis

	<i>Beta</i>	<i>t</i>	<i>p</i>
Age	0.165	2.466	0.015
Physical QoL	0.189	0.189	0.012
Psychological QoL	0.173	2.538	0.012
State-anxiety	-0.265	-3.385	0.001
Trait-anxiety	-0.146	-2.320	0.022

QoL, quality of life; SVT: Supraventricular tachycardia.

Also, arrhythmias developed in cases with established SVT, that is arrhythmias emerged in patients with “true” arrhythmias increase the preexisting anxiety, and conversely decrease quality of life of the sufferers. The outcome of our study has demonstrated that a potential preexisting arrhythmia in patients might adversely effect their levels of anxiety, and quality of life. In clinical practice, it might not be appropriate to refer patients with unexplained palpitations who are suffering from symptoms of anxiety directly to the department of psychiatry without prior adequate cardiac evaluation. Electrophysiologic examinations in collaboration with clinics of mental diseases might be regarded as a diagnostic alternative. Indeed, our study have

demonstrated that those with true SVTs among patients who complained of palpitations, had higher levels of anxiety, but lower quality of life scores.

Kitzlerová et al ^[15] performed psychopathologic evaluations among patients with SVT episodes, and compared 25 patients experiencing documented SVT episodes to general population as for psychopathological variables. Unlike our study, they couldn’t find a significant difference in psychiatric scales especially those evaluating anxiety, and depression. In their investigation, different from our study, patients with documented arrhythmias were compared to normal general population. However in our study, patients with documented arrhythmias were not included in our analysis. Inability to

document arrhythmia in our cases, in other words, failure to name the disease, might increase anxiety levels of our patients. Besides lesser number of patients were included in their study relative to ours.

In another study, it was emphasized that symptoms like panic attacks which might be seen in patients experiencing SVT episodes might mask arrhythmic manifestations and thus the diagnosis of SVT is overlooked. In this study 107 patients demonstrating SVT attacks were evaluated retrospectively as for panic attack criteria, and these criteria were reportedly met by 67 % of the patients.[4] Besides, higher levels of anxiety found in the SVT group display parallelism with this study.

Besides, in our study some quality of life parameters as age, physical, and psychological quality of life, and anxiety were detected to be among independent predictors of SVT. This phenomenon suggests that advanced age, lower quality of life, and increased level of anxiety might predispose to the future development of arrhythmia.

Limitations of the study

The main limitation of our study was relatively smaller number of our patients. The sensitivity of event recorders, and implantable monitors is higher than that of rhythm Holter in the detection of arrhythmic episodes in patients whose unexplained palpitations do not occur every day. Since we hadn't these

equipments in our clinic, we couldn't use event recorders, and implantable monitors for our patients. This fact is another limitation of our study.

In conclusion, our study have demonstrated that patients experiencing 'true' episodes of SVT among those complaining of palpitations have higher anxiety, , but lower quality of life scores. In clinical practice, while evaluating patients with unexplained palpitations, a possible association between emergent recognized psychiatric symptoms, and underlying arrhythmia should not be overlooked.

Conflict of disclosure: None declared.

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Key words: Electrophysiologic technique, cardiac; heart diseases; tachycardia, supraventricular; tachycardia/diagnosis; quality of life.