Araştırma Makalesi

The Relation Between Coronary Heart Disease Risk and Quality of Life in Asymptomatic Sedentary Individuals

Asemptomatik Sedanter Bireylerde Koroner Kalp Hastalığı Riski ve Yaşam Kalitesi Arasındaki İlişki

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ÖZ

Amaç: Kalp hastalıkları içerisinde en sık görülen koroner arter hastalığı (KAH) aynı zamanda en önde ölüme neden olan hastalıklar arasındadır. Bu çalışmada, asemptomatik sedanter bireylerde KAH riski ve sağlıkla ilişkili yaşam kalitesi (SİYK) ilişkisini incelemeyi amaçladık. **Gereç ve yöntem:** Çalışmaya 120 birey dahil edildi. 61'i kadın, 59'u erkekti. KAH riski Framingham Risk Skorlama İndeksi ile (FRSİ) belirlendi. Ek olarak, SİYK Nottingham Sağlık Profili (NSP) ile değerlendirildi. **Sonuçlar:** Bu çalışamada NSP skoru yüksek olanalar da FRSİ skoru da yüksekti. Pearson's korelasyon analizine göre, FRSİ ve NSP toplam skorları arasında istatistiksel anlamlı pozitif korelasyon bulundu (r=;0,.237 p=0,.011). Ayrıca ağrı , uyku ve fiziksel yetenekler gibi NSP'nin alt grupları ve FRSİ ile anlamlı korelasyonlar vardı (sırasıyla, r=0,.260, p=0,.005; r=0,.273, p=0,.003, and r=0,.241, p=0,.010). **Tartışma:** Araştırmacılar SİYK seviyesi iyi olduğunda, KAH riskinin düşük olduğu sonucuna varmıştır. Bu nedenle, tedavi stratejileri planlanırken ve KAH'tan korunmak için SİYK'in iyileştirilmesine odaklanmak çok önemlidir. Bu çalışma, KAH riski ve SİYK arasındaki ilişkiyi göstermiş olmasına ragmen, ileri bilgiler için daha geniş çalışmalara ihtiyaç vardır.

Anahtar Kelimeler: Koroner arter hastalığı; Yaşam kalitesi

ABSTRACT

Purpose: Coronary heart disease (CHD) is the most common form of heart diseases and is a leading cause of death worldwide. In this study, we aimed to evaluate the relation between CHD risk and health related quality of life (HRQoL) in asymptomatic sedentary individuals.**Materials and methods:** One hundred and twenty individuals who were included the study. Sixty-one of them were female and 59 were male. The risk for CHD was determined by Framingham Risk Scoring Index (FRSI). Moreover, HRQoL was assessed by the Nottingham Health Profile (NHP). **Results:** In this study, who had high scores for NHP, had also high scores for FRSI.   Significant correlation was found between FRSI and NHP total score (r=0.237 p=0.011). And also, for the subgroups of NHP, for NHP-pain, NHP-sleep, and NHP-physical abilities, they had significant correlations with FRSI (r=0.260, p=0.005; r=0.273, p=0.003, and r=0.241, p=0.010, respectively). **Conclusion:** The investigators concluded that when the level of HRQoL is good, the CHD risk will be low. So, while planning the treatment strategies and for protecting from CHD focusing on and improving the HRQOL is very important. Although, the study demonstrated relation between CHD risk and HRQoL, large scale studies are required for further information.

Keywords: Coronary heart disease; Quality of life

Coronary heart disease (CHD) continues to be a leading cause of morbidity and mortality among adults in the world (McGovern, Pankow, Shahar et al,1996; Hamrefors, 2015). Many risk factors were described for CHD such as diabetes mellitus, hypertension, hyperlipidemia, smoking, strong family history of an early CHD, obesity, etc. (Gordon and Kannel, 1982; Kannel WB and McGee, 1979; Bruthans, Mayer, De Bacquer, et al.2015).

Many risk scoring systems and tests are used to determine assessment for estimating risk of CHD (Anderson, Odell, Wilson et al, 1991; Bruckert, E., Bonnelye, G., Thomaset al, 2011).

−Framingham risk scoring index (FRSI) (Kannel et al, 1979),

−Modified Framingham risk scoring index (Wood, De Backer, Faergeman et al, 1998),

−Systematic Coronary Risk Evaluation (SCORE) risk scale (Conroy, Pyorala, Fitzgerald et al, 2003),

−Prospective Cardiovascular Münster (PROCAM) risk scoring (Assmann, Cullen and Schulte, 2002) also can be given as an example.

Physicians use a simplified coronary prediction model based on Framingham Heart Study to predict multivariable CHD risk (Anderson et al, 1991). The Framingham Heart Study embarked a project in health research to identify the common factors that contribute to cardiovascular disease by following its development over a long period of time in a large group of participants in 1948. Over the years, careful monitoring of the Framingham Study population has led to the identification of major CHD risk factors, as well as information on the effects of these factors such as blood pressure, blood triglyceride and cholesterol levels, age, gender, and psychosocial issues. As defined by Yalçın M., while the other risk scoring systems estimated moderately, the presence of CHD was identified best by FRSI among the other risk scoring systems (Yalçın, Kardeşoğlu, Aparcı et al, 2012).

The assessment of health related quality of life (HRQoL) is an essential element of healthcare evaluation (Coons, Rao, Keininger et al, 2000). Hundreds of generic and specific HRQoL instruments have been developed. The Nottingham Health Profile (NHP) was designed to reflect the lay perception of health status as opposed to the professional definition of health. It was originally developed to be used in epidemiological studies of health and diseases (McEwen and McKenna 1996; Bak and Marcisz, 2014). Measurement of HRQoL makes it possible to assess patients' health needs, provided the instrument covers the needs typical of CHD patients (Lukkarinen and Hentinen, 2006).

There is not enough number of research concerning HRQoL in patients with CHD treated invasively and has not been conducted in a sufficiently comprehensive way, also has not simultaneously taken into account the determinants of QoL, such as sleep, pain, the patient's emotional state, physical mobility, or depression in CHD. Besides, there are limited number of studies dealing with cardiovascular risk and HRQoL. This study was performed to evaluate the relation between cardiovascular risk and HRQoL in asymptomatic sedentary individuals.

MATERIAL AND METHODS
Subjects

One hundered and twenty asymptomatic sedentary individuals were included this study. However, most of them had positive risk factors (Table 1).

Table 1. Associated Diseases of Participants (n=120)

	n (%)
Diabetes Mellitus	38 (32)
Hypertension	77 (64)
Hyperlipidemia	80 (67)
CHD	71 (59)
Current Smoker	35 (29)
Family History for CHD	87 (73)

This study protocol was conducted in accordance with the rules of the Declaration of Helsinki. Written and oral information was given to all patients before testing. All participants gave their informed and oral consent for participation. The trial was conducted between May 2011 and September 2011 in Ufuk University, Department of Cardiology.

To be eligible for inclusion being over 18 years old, having a coronary angiogram clear enough to enable evaluation of the cause of chest pain, orally stating him/herself as physically inactive and had consented to participate. They were excluded if they had a current pregnancy, cardiomyopathy, acute myocardial infarction or any revascularization procedures, unstable angina pectoris, history of congenital heart disease, chronic renal failure, follow−up visits or medical treatment for chronic psychosis, recent medical treatment for depression, insufficient cooperation, and incomplete study forms.

The sample was derived from a population of 147 outpatients of the Cardiology department. Twenty seven participants were excluded from the study because of the inclusion criteria. Finally, 120 subjects participated in the current study.

Outcome Measures
Demographic data (age, sex, weight, height) and medical history were recorded at the beginning of the study.

The Framingham Risk Scoring Index
The cardiovascular risk was determined by FRSI based on the study of D'Agostino et al (D'Agostino, Vasan, Pencina et al, 2008). While diabetes was accepted as a high risk factor, this scoring index was modified as Modified Framingham risk scoring index by subtracting diabetes (Wood et al, 1998). The predictors for this model are age, diabetes, smoking, treated and untreated systolic blood pressure, total cholesterol, HDL cholesterol and BMI (D'Agostino et al, 2008).

The Nottingham Health Profile
The NHP is a widely used generic tool to measure HRQoL. It contains 38 items divided into 6 dimensions: NHP−energy, NHP−pain, NHP emotional reactions, NHP−sleep, NHP−social isolation, and NHP−physical mobility. All the parameters are summed as NHP−total. The respondent answers "yes" if the statement adequately reflects the current status or feeling, or "no" otherwise. Dimension scores range from 0 (no problems) to 100 (maximum problems). The Turkish version was administered, and it has been shown to be valid and cross−culturally equivalent to the original

(Kücükdeveci, McKenna, Kutlay et al, 2000).

Statistics
Statistical analyses were done using the Statistical Package for the Social Sciences (SPSS) version 17.0 for Windows, including descriptive statistics. Data are presented as means (± standard deviation of the mean) (SD) in the text. Pearson's Correlation analysis was used. The level of statistical significance was set at 0.05.

RESULTS
61 female (49%) and 59 male (51%) whose mean age was 58.37±11.8 years were evaluated in this study. Their body mass index was 28.78±4.28 kg/cm✢.

In addition, mean value of FRSI was 14.3 ± 4.7 and the NHP total score was found 193.5 ± 135.4 (Table 2).

Tablo 2. The Mean Values of Framingham Risk Score Index and Nottingham Health Profile

	X±SD
Framingham Risk Scoring Index	14.35±4.73
Nottingham Health Profile (NHP)	
NHP-Energy	47.44±40.27
NHP-Pain	30.27±32.62
NHP-Emotional Reaction	38.97±28.58
NHP-Social Isolation	16.78±25.18
NHP-Sleep	32.66±29.19
NHP-Physical Abilities	26.99±23.09
NHP-TOTAL	193.15±135.45

Significant positive correlation were found between FRSI and NHP total score (p=0.011, r=0.237) and its subgroups according to Pearson's correlation analysis. NHP pain (p=0.005, r=0.260) NHP sleep (p=0.003, r=0.273), NHP physical abilities (p=0.001, r=0.241) (Table 3). In the present study the individuals who had high scores for NHP, also had high scores for FRSI.

Table 3. Correlation between Framingham Risk Score and Nottingham Health Profile

Nottingham Health Profile (NHP)	Framingham Risk Scoring Index	
	r	P
NHP-Energy	0.154	0.102
NHP-Pain	0.260	**0.005****
NHP-Emotional Reaction	0.043	0.651
NHP-Social Isolation	0.105	0.268
NHP-Sleep	0.273	**0.003****
NHP-Physical Abilities	0.241	**0.010****
NHP-TOTAL	0.237	**0.011***

*p<0.05, **p<0.01, r: Pearson's correlation coefficient

DISCUSSION

The present study was performed to determine the relationship between cardiovascular risk and quality of life in asymptomatic sedentary individuals by using FRSI and NHP. The results demonstrated that there was a significant relation between cardiovascular risk and HRQoL.

According to data obtained from this study, if HRQoL level decreases, cardiovascular risk increases. This situation may be explained by having sedentary life styles, low functional status, pain,, emotional status and sleeping disturbances. This can be related with obesity and inactivity also because obesity and sedentary life style have been described as risk factors for cardiovascular diseases at Framingham Heart Study (Kim, Cho and Park, 2015). For the patients who specified risk by FRSI, the precautions would be taken. Also, early diagnose could be possible related with CHD (Yalçın et al, 2012).

The benefits of physical activity on health, longevity, and well−being easily surpass the effectiveness of any drugs or other medical treatment. Physical activity has many beneficial effects on the body, helps prevent the development of many chronic diseases and is a useful complement to drug treatment in many diseases (Wittink, Engelbert and Takken, 2011). It can be said that therapists could identify individuals with high cardiovascular risk levels with a cardiologist and could prepare preventive programs including such as exercise and relaxation training. Increasing the physical activity has been found effective to lose weight (Álvarez, Olivo, Robinson et al 2013). By increasing the physical activity level, cardiovascular risk factors such as obesity and stress (changeable risk factors) can be eliminated (Merino, Ferré, Girona, et al, 2015).

If therapist who specialized in cardiac rehabilitation knows a person who has possible high cardiovascular risk, during exercise treatment sessions they had to be more alert and careful about their patients. Also, they can offer their patients and healthy individuals as well to quit smoking and improve their awareness about cardiovascular risk factors. While the HRQOL and cardiovascular risk are found related in this study, this data may take into account by the rehabilitation team.

Important limitation of this study is objective methods are not used for determining the physical activity level, just verbal questioning of individuals' level of physical activity were realized.

As a result it can be concluded that risk scoring systems are important in terms of awareness, risk management, clinical and economic gain. Patient−reported outcomes (PROs) specifically give the patient's perspective. Also, the patient's own perception of changes in his or her health status is the most important indication of the success of the interventions (Lexell and Downham, 2005). FRSI is also a useful tool for therapists to detect possible cardiovascular risk factors about their

patients and can be used for preventive public health rehabilitation and also can be a good clue for describing community based treatment plans. The scope of cardiovascular risk assessment should include carefully examining of HRQoL for planning appropriate intervention programs. However, further long–term follow–up and larger sample group studies and are needed.

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