Kinesiophobia in Hearing Loss

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Abstract

Aim: Kinesiophobia is an irrational fear, which depends on the belief in injury predisposition. It is associated with lower levels of physical activity. Diagnosing hearing loss can lead to kinesiophobia.

Method: The study was planned as a case-control study. A total of 105 subjects with 70 hearing impairment and 35 healthy subjects were included in the study between the ages of 40-76. Sociodemographic data of all participants were recorded. World Health Organization Quality of Life Scale (WHOQOL-bref) for for evaluation quality of life; and the Tampa Scale for Kinesiophobia (TSK) for evaluation of kinesiophobia were used. Hearing deficit of patients were made by hearing test measurements (air and bone). Airway results were taken into account.

Findings: Both groups were similar in terms of age, Body Mass Index (BMI), education and marital status (p=0.64/0.06/0,08/0,83). The physical health score component of the WHOQOL-bref questionnaire was significantly lower in the study group (p=0.006). The other sub-parameters (general health, psychological health, social and environmental relations) were similar. There was no difference between the TSK results (p=0.76). The mean hearing frequencies (right / left) in the study group were correlated with TSK (p=0.029, r=0.319). In the study group, TSK and WHOQOL-bref (p = 0.00, r = -0.64) showed a negative correlation.

Conclusion: Subjects with hearing loss have higher levels of kinesychophobia and lower physical health scores than healthy individuals matched with age and BMI. Kinesiophobia may affect quality of life in this population.

Keywords: Hearing loss, ageing, quality of life.

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İşitme Kaybında Kinezyofobi

Öz

Amaç: Kinezyofobi, yaralanmaya yatkınlık inanışına bağlı olan irrasyonel bir korkudur. Daha düşük fiziksel aktivite seviyeleri ile ilişkilidir. İşitme kaybı tanısı koymak kinezyofobiye yol açabilir.

Yöntem: Çalışma vaka-kontrol çalışması olarak planlanmıştır. Yaşları 40-76 arasında, işitme kaybı olan 70'i hasta ve 35'i sağlıklı toplamda 105 kişi çalışmaya alınmıştır. Tüm katılımcıların sosyodemografik verileri kaydedilmiştir. Yaşam kalitesini değerlendirmek için Dünya Sağlık Örgütü Yaşam Kalitesi Ölçeği kısa formu (WHOQOL-bref); kinezyofobiyi değerlendirmek için Tampa Kinezyofobi Skalası (TKS) kullanılmıştır. İşitme yetersizliği olan hastalara işitme testi ölçümleri yapılmıştır (hava ve kemik). Hava yolu sonuçları dikkate alınmıştır.

Bulgular: Her iki grup yaş, Beden Kütle İndeksi (BKİ), eğitim ve medeni durum açısından benzerdir (p=0.64/0.06/0.08/0.83). WHOQOL-bref anketinin fiziksel sağlık skoru bileşeni çalışma grubunda anlamlı olarak düşüktür (p=0,006). Diğer alt parametreler (genel sağlık, psikolojik sağlık, sosyal ve çevresel ilişkiler) benzer idi. TKS sonuçları arasında fark yoktu (p =0.76). Çalışma grubundaki ortalama işitme frekansları (sağ/sol) TKS ile korelasyon göstermiştir (p=0.029, r=0.319). Çalışma grubunda TKS ile WHOQOL-bref (p=0.00, r=-0,64) negatif korelasyon göstermiştir.

Sonuç: İşitme kaybı olan bireylerin yaş ve BKİ ile eşleştirilmiş sağlıklı bireylere göre daha yüksek kinezyofobi ve daha düşük fiziksel sağlık skor düzeyleri vardır. Kinezyofobi bu popülasyonda yaşam kalitesini etkileyebilir.

Anahtar Sözcükler: İşitme kaybı, yaşlanma, yaşam kalitesi.

Introduction

Various chronic diseases in the advanced age population may affect the quality of life and function of the individual negatively[1,2]. Kinesiophobia is an irrational fear of movement due to the belief of susceptibility to injury. It is associated with lower levels of physical activity. Kinesiophobia should be continuously assessed in clinical settings to recognize the obstacles that may affect patient's compliance towards a rehabilitation program in advanced age[3].

Hearing loss changes the functionality and body structure and cause a disability that limits activity and restricts the participation of the individual in situations of daily life. As physical activity is essential for bone and general health, individuals should be educated and counseled about the effects of hearing loss and the importance of physical activity to overcome kinesiophobia[4].

For the first time in the literature, we examined the relationship between kinesiophobia and quality of life in advanced age people with hearing loss.

Material and Method

The study was planned as a case-control study. A total of 105 patients with 70 hearing impairment and 35 healthy subjects were included in the study between the ages of 40-76. Sociodemographic data of all participants were recorded. The World Health Organization Quality of Life Scale-short form (WHOQOL-bref) for assessing quality of life; TSK was used to assess kinesiofobia. Hearing deficients of patients were made by hearing test measurements (air and bone). Airway results were taken into account. Chronic illness (infection, rheumatism, malignancy, physical disability, etc.) that affects quality of life is defined as the exclusion criterion.

Tampa Scale for Kinesiophobia (TSK)

Kinesiophobia is a term that was introduced by Miller, Kori and Todd in 1990 at the Ninth Annual Scientific Meeting of The American Pain Society and describes a situation where “A patient has an excessive, irrational, and debilitating fear of physical movement and activity resulting from a feeling of vulnerability to painful injury or reinjury.”[5,6]. TSK is a 17 item questionnaire used to assess the subjective rating of kinesiophobia or fear of movement. The original questionnaire was developed to “discriminate between non-excessive fear and phobia among patients with chronic musculoskeletal pain” Several studies have found the scale to be a valid and reliable psychometric measure. As the score increases, the severity of kinesophobia increases[7,8].

The World Health Organization Quality of Life (WHOQOL) Instrument

The World Health Organization Quality of Life (WHOQOL) project was initiated in 1991. The aim was to develop an international cross-culturally comparable quality of life assessment instrument. It assesses the individual's perceptions in the context of their culture and value systems, and their personal goals, standards and concerns.

The WHOQOL instruments were developed collaboratively in a number of centers worldwide, and have been widely field-tested. The WHOQOL-BREF instrument comprises 26 items, which measure the following broad domains: physical health, psychological health, social relationships, and environment. The WHOQOL-BREF is a shorter version of the original instrument that may be more convenient for use in large research studies or clinical trials. High scores indicate high quality of life[9].

Statistical Analysis

SPSS 17 (SPSS Statistics for Windows, Version 17.0. Chicago: SPSS Inc, USA) was used for statistical analysis. The normal distribution of the data was evaluated using Kolmogorov–Smirnov test. Some descriptive tests were used for the descriptive data. For each parameter, a comparison was done between the two groups. The *t* test was used for the groups that showed normal distribution. The Mann–Whitney *U* test was used for the groups that did not show normal distribution. A *P* value <0.05 was considered statistically significant. The study has been done in accordance with the Principles of Helsinki Declaration.

Findings

Both groups were similar in terms of age, Body Mass Index (BMI), education and marital status (p=0.64/0.06/0.08/0.83). The physical health score component of the WHOQOL-bref questionnaire was significantly lower in the study group. The other sub-parameters (general health, psychological health, social and environmental relations) were similar. There was no difference between the TSK results (p=0.76). The mean hearing frequencies (right/left) in the study group were correlated with TSK (p=0.029, r=0.319). TSK was negatively correlated with WHOQOL-bref (p=0.00, r=-0,64) in the study group (Figure 1). Mean hearing frequencies were higher in males than females in the study group (p=0.024). In other parameters, the results were similar in both gender. Descriptive and analytic characteristics are shown at Table 1.

Figure 1: The negative relation between WHOQOL and TSK.

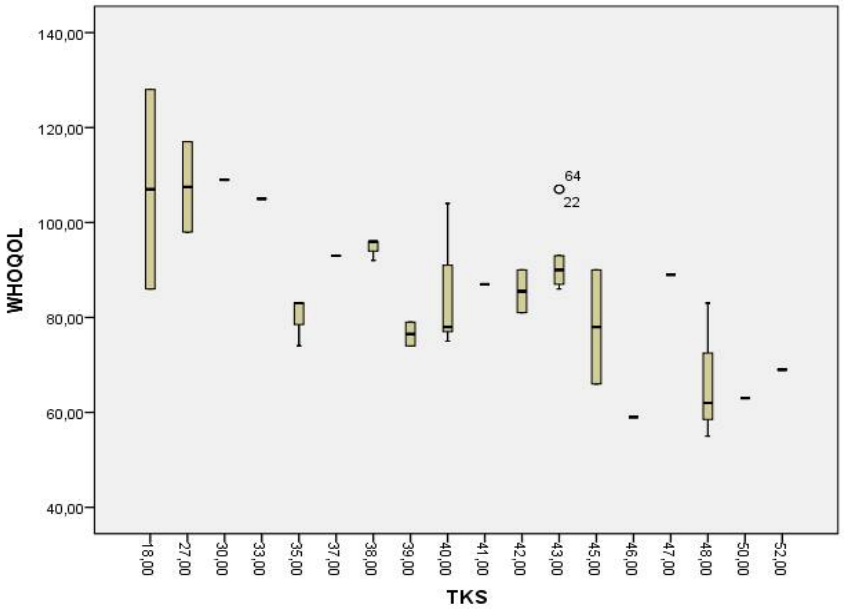

Table 1: Descriptive and analytic characteristics data of the groups

	Hearing loss (n=70)		**Control (n=35)**		*p*
	n	**%**	**n**	**%**	
Education					0,08
İlliterate	7	10	2	5,7	
Primary/middle	35	50	12	34,3	
High	11	15,7	6	17,2	
University	2	2,8	13	37,1	
Unknown	15	21,5	2	5,7	
Marital status					0,83
Unmarried	16	22,8	4	11,4	
Living together	2	2,8	4	11,4	
Separated	5	7,2	4	11,4	
Married	35	50	21	60	
Partner is dead	8	11,5	0	0	
Unknown	4	5,7	2	5,8	

	Hearing loss (n=70) Mean±STD	**Control (n=35)** Mean±STD	*p*
Age (year)	53,7±15,6	52,4±6,9	0,64
Gender (M/F)*	46/24	12/23	**0,02**
BMI (kg/m^2)	25,7±4,7	26,3±2,8	0,06
WHOQOL-bref (26-125)	84,7±15,9	86,3±13,7	0,18
General health (2-10)	6,6±1,8	6,9±1,2	0,47
Physical health (7-35)*	20,7±5,1	23,3±6,7	**0,006**
Psycologic health (6-30)	20,9±3,8	19,8±4,6	0,22
Social relationship (3-15)	10,1±2,7	9,7±3,3	0,54
Environmental relationship (8-40)	27,1±5,2	27,5±3,3	0,73
Tampa Scale for Kinesiophobia (TSK) (17-68)	38,7±7,8	39,2±7,4	0,76
Right ear, airway (db)	54,3±13,5	-	
Left ear, airway (db)	53,4±13,1	-	

Abbreviations: WHOQOL-bref: The World Health Organization Quality of Life; BMI: Body Mass Index. *statistically significant difference.

Discussion

Physical health scores were significantly lower in hearing impaired people, and kinesiophobia and other parameters were similar. We also found that kinesophobia was significantly correlated with hearing frequencies and total quality of life scores. The high TSK score in hearing impaired individuals (those with high mean hearing frequencies) supports that hearing impairment increases kinesiophobia. However, the significant difference in TSK between the hearing impaired and healthy group supports that the hearing impairment may affect the kinesiophobia with different mechanisms. The fact that TSK is negatively correlated with the health quality and physical health score supports that the physical disability increases the kinesiofobia.

According to the current data it has been observed that kinesiophobia is affected by a small number of musculoskeletal chronic disorders (low back pain, osteoporosis) on the quality of life and functions. Additionally, clinical pain intensity was found significantly higher in patients with a high degree of kinesiophobia compared with patients with a low degree of kinesiophobia[10]. Overall kinesiophobia appears to have an adverse effect on balance and mobility in individuals with advanced age musculoskeletal complaints[11-15]. It is necessary to define kinesiophobia well in advanced age individuals. TSK might be a quick and simple measure to identify patients at risk for poor self-perception of functional ability in advanced age population[16].

Hearing loss is the most common sensory deficit in the advanced age, and it is becoming a severe social and health problem. Disabling hearing loss refers to hearing loss greater than 40 dB in the better hearing ear in adults (15 years or older) and greater than 30 dB in the better hearing ear in children (0 to 14 years). More than the half of the adults with disabling hearing loss are adults of 65 years or older i.e. 164.5 millions. Hearing loss can interfere with the ability to understand speech sounds, leading to difficulties in communication and learning, reduced work productivity, increased depression and anxiety, and social isolation. Age-related hearing loss is one of the three leading common chronic diseases in elderly individuals, along with arthritis and hypertension, and its incidence is increasing rapidly[16,17].

Especially in the advanced age, hearing loss can impair the exchange of information, thus significantly impacting everyday life, causing loneliness, isolation, dependence, and frustration, as well as communication disorders. Due to the aging of the population in the developed world, it is a growing problem that has been reported to reduce quality of life (QoL)[16,17]. Impaired QoL has been associated with increased mortality and disease progression. In the study by Joo JH et all subjects with hearing loss with tinnitus appear to have a greater risk of deterioration of QoL than those patients who simply have hearing loss or tinnitus[18].

Progression in hearing loss cannot be remediated; therefore, optimal management of this condition not only requires early recognition and rehabilitation, but it also should include an evaluation of QoL status and its assessment[19-22]. According to the study by Mohan S et al. health-related quality of life in hearing-impaired subjects is found worse than controls[23]. The scales of disease-specific (Inner EAR) and general health status in

patients reporting hearing loss shows weak correlation each other, so we need new scales to asses the subjects with hearing loss[24]. In our study, kinesiophobia was significantly correlated with physical health score and hearing frequencies in study group. Accordingly, kinesiophobia was significantly higher in patients with severe hearing loss and poor physical health.

Limitation of the study

Our study group consisted mostly of males than control group. Gender differences in hearing and kinesiophobia may have affected the outcome of the study.

Conclusion

According to the study, kinesiophobia were found to be correlated with hearing frequencies and quality of life scores. The physical health score was found significantly lower in study group. We may say that hearing impairment negatively affects the physical health in this age group with being correlated with disease severity.

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