



A Prospective Analysis of the Association Between Sexual Dysfunction and Idiopathic Sensorineural Hearing Loss in Men

Erkeklerde Cinsel İşlev Bozukluğu ile İdiyopatik Sensörinöral İşitme Kaybı Arasındaki İlişkinin Prospektif Bir Analizi

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ABSTRACT

Objective: The aim was to investigate the relationship between idiopathic sudden sensorineural hearing loss (ISSHL) and male sexual dysfunction (SD).

Methods: Nineteen ISSHL patients were included in the patient group. The control group consisted of nineteen healthy subjects. The pure tone mean (PTM) was determined by averaging the hearing thresholds (250, 500, 1,000, 2,000, 4,000, and 8,000 Hz). Male SD was assessed using the International Index of Erectile Function (IIEF)-5 survey. IIEF-5 items are grouped as the first 4 (IIEF-5_{Q1-Q4}) and the final item (IIEF-5_{Q5}). Intratympanic steroid treatments were administered on the 1st, 3rd, 5th, 7th, 14th, and 30th days of ISSHL diagnosis. Twenty sessions of hyperbaric oxygen therapy were applied to the patients starting from the first day of diagnosis. On the 180th day of the study, patients with hearing gain of less than 15 dB and a PTM value of less than 75 dB were considered treatment failures. The questionnaires of the patients who were successful with the treatment were repeated. The obtained data were analyzed statistically.

Results: Pre-treatment IIEF-5 and IIEF-5_{Q1-Q4} scores were significantly lower than those of the control group ($p < 0.05$). Post-treatment IIEF-5 and IIEF-5_{Q1-Q4} scores were significantly higher than the pre-treatment scores ($p < 0.05$). Erectile dysfunction (ED) suspicion in the IIEF-5 questionnaire results was significantly higher in ISSHL patients ($p = 0.002$). For ISSHL patients, ED suspicion was significantly lower in the post-treatment period compared in the pre-treatment period ($p = 0.002$).

Conclusion: ISSHL may be accepted as a risk factor for SD. ISSHL can affect sexual life and therefore quality of life.

Keywords: Erectile dysfunction, hearing loss, sensorineural, questionnaires, recovery of function, male, sexual dysfunction, physiological

ÖZ

Amaç: Bu çalışmanın amacı idiyopatik ani sensörinöral işitme kaybı (ISSHL) ile erkek cinsel işlev bozukluğu (SD) arasındaki ilişkiyi araştırmaktır.

Gereç ve Yöntem: Çalışmanın hasta grubuna 19 ISSHL hastası dahil edildi. Kontrol grubu 19 sağlıklı bireyden oluşturuldu. Saf ton ortalaması (PTM), işitme eşiklerinin (250, 500, 1.000, 2.000, 4.000 ve 8.000 Hz) ortalaması alınarak belirlendi. Erkek SD, Uluslararası Erektıl Fonksiyon İndeksi (IIEF)-5 anketi kullanılarak değerlendirildi. IIEF-5 maddeleri ilk 4 (IIEF-5_{Q1-Q4}) ve son madde (IIEF-5_{Q5}) olacak şekilde gruplandırıldı. ISSHL tanısının 1., 3., 5., 7., 14. ve 30. günlerinde intratimpanik steroid tedavisi uygulandı. Hastalara tanının ilk gününden itibaren 20 seans hiperbarik oksijen tedavisi uygulandı. Çalışmanın 180. gününde işitme kazancı 15 dB'nin altında ve PTM değeri 75 dB'nin altında olan hastalar tedavi başarısızlığı olarak kabul edildi. Tedavisi başarılı olan hastaların anketleri tekrarlandı. Elde edilen veriler istatistiksel olarak analiz edildi.

Bulgular: Tedavi öncesi IIEF-5 ve IIEF-5_{Q1-Q4} puanları kontrol grubuna göre anlamlı derecede düşüktü ($p < 0,05$). Tedavi sonrası IIEF-5 ve IIEF-5_{Q1-Q4} puanları tedavi öncesine göre anlamlı derecede yüksekti ($p < 0,05$). IIEF-5 anket sonuçlarına göre erektil disfonksiyon (ED) şüphesi olan denek sayısı ISSHL hastalarında anlamlı olacak şekilde daha yüksekti ($p = 0,002$). ED şüphesi olan ISSHL hastası sayısı tedavi öncesi döneme göre tedavi sonrası dönemde anlamlı olacak şekilde daha düşüktü ($p = 0,002$).

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Sonuç: ISSHL, SD için bir risk faktörü olarak kabul edilebilir. ISSHL cinsel yaşamı ve dolayısıyla yaşam kalitesini etkileyebilir.

Anahtar Kelimeler: Erektile disfonksiyon, işitme kaybı, sensörinöral, anket çalışması, fonksiyonun geri kazanılması, erkek, cinsel işlev bozukluğu, fizyolojik

INTRODUCTION

Idiopathic sudden sensorineural hearing loss (ISSHL) is defined as a rapid-onset acute hearing loss of at least 30 decibels at three consecutive frequencies occurring over a 3-day (72 h) period, with no identifiable cause (1,2). The incidence in different studies has been determined as 11-77 per 100,000 people per year (3). Although there is no definite known cause of this disease, which can cause hearing loss of varying severity, ranging from mild to total loss, viral infections, vascular disorders, immune-mediated reactions, autonomic nervous system-related diseases, and cochlear membrane rupture are included in the pathogenesis of ISSHL (1-4). ISSHL is associated with different system diseases and affects the quality of life (QoL) of patients (4).

Male sexuality, a dynamic and sophisticated process, is an important part of the QoL (5,6). Male sexual dysfunction does not describe a single condition. It is a disorder that occurs in at least one of the basic male sexual functions such as desire, male sexual arousal, erection, orgasm, and ejaculation (5). Erectile dysfunction (ED), one of the most common male sexual disorders, is defined as the inability to achieve and/or maintain an adequate penile erection for sexual activity (6). Penile erection is affected by many factors, such as hormonal, neurogenic, vascular, and psychogenic factors (6,7). Various methods have been used to measure the presence and severity of ED. The International Index of Erectile Function (IIEF) questionnaire is a 15-item self-report survey that has become the primary method in ED studies (8). The IIEF-5 questionnaire is a variant of the IIEF developed for the same purpose that can be administered in a shorter time (9).

ED is associated with different diseases. The frequency of ED increases with chronic diseases, such as chronic lung diseases, endocrine diseases, cardiovascular diseases, and psychiatric disorders (10). However, the presence of ED is an early warning of coronary artery and peripheral vascular diseases (11). A disease associated with ED is ISSHL (12,13). Although there are limited studies on this relationship in the literature, in a study conducted to examine the relationship between ED and ISSHL, the incidence of ED in ISSHL patients was 1.96 times higher than in patients without this disease (12).

This study investigated the frequency of ED in men with ISSHL and the response of ED to ISSHL treatment in these men, prospectively.

METHODS

This prospective-case control study was conducted on patients and volunteers between November 2021 and May 2022 with the confirmation of the İstanbul University-Cerrahpaşa, Cerrahpaşa Faculty of Medicine Clinical Research Ethics Committee (decision no: 177948, date: 08.09.2021). All individuals signed an informed consent form.

Populations, Inclusion, and Exclusion Criteria

All subjects of this study applied to the Otorhinolaryngology Departments of Cerrahpaşa Faculty of Medicine Hospital and University of Health Sciences Turkey, İstanbul Haseki Training and Research Hospital. Married and sexually active male patients with ISSHL and healthy volunteers were included in this study. The control group consisted of sexually active healthy men. Patients with unilateral sudden idiopathic sensorineural hearing loss were included in the study group. All the patients in this study applied within the first 3 days of the onset of hearing loss.

Exclusion criteria were determined to include conditions that may be risk factors for sexual dysfunction: being over 50 years of age, obese (body mass index ≥ 30), alcohol-dependent, smoker; having a history of mental, sexual, and psychiatric disorders, chronic disease and atherosclerosis (14). Additionally, the individuals under 18 years of age, the individuals with acute or chronic infection in the affected ear, the individuals with a history of ear surgery, the patients whose etiologic cause of sudden hearing loss was determined during the study period and the individuals who regularly used any drug in the past 3 months were excluded from the study.

One of the aims of this study was to investigate the effect of SSHL treatment on sexual dysfunction. Therefore, in the pure tone audiometry (PTA) test, a gain of more than 15 dB on the average of 6 frequencies was determined as the treatment success criterion (15). The patients who could not achieve this success with treatment in the 6th month of the disease were excluded from the study.

Sample Size and Sampling Technique

The minimum (min) number of subjects was calculated based on the study of Bakır et al. (16). The min subject number was determined as 19 for each group with a 95% confidence interval (5% acceptable error).

In this study, a stratified sampling method was used. People who applied to our clinic every day were divided into 2 subgroups; the patients with SSHL and people with normal hearing. Four participants were randomly selected every day from these layers using a computer program. The individuals having any exclusion criteria for the study were excluded from the subgroups.

Procedures and Data Collection

Study Design

Day 0 (initial): Detailed anamnesis of the participants were taken. The full-otorhinolaryngological examination, audiological tests, blood tests, and imaging tests for the etiology of sudden hearing loss were performed. Patients with sensorineural hearing loss of more than 30 decibels for at least 3 consecutive frequencies were included in the study group. The pure tone mean (PTM) was determined by averaging the hearing thresholds at frequencies of 250, 500, 1,000, 2,000, 4,000, and 8,000 Hz. The healthy individuals who the normal audiological test was included in the control group. The treatments of ISSHL were arranged. IIEF-5 questionnaires were administered to the participants.

Day 180 (6th month): The PTA tests and questionnaires of the patients were repeated. Patients with hearing gain of less than 15 dB and a PTM value of less than 75 dB were considered treatment failures (17). Patients who did not achieve success with the treatment were excluded from the study.

Methods

Clinical Examinations

The full-otorhinolaryngological was examined using 0° and 70° endoscopes by the first otorhinolaryngology specialist. Patients whose anamnesis and tuning fork tests were compatible with sudden hearing loss were referred to the audiology department.

Audiological Tests

Patients from the clinic were sent to the audiology department for audiological tests without specifying their clinical presentations. PTA tests were performed blindly in the same center, in the same cabin, by the same person with the same device.

Laboratory Tests

A complete blood count was performed on each patient. Enzyme-linked immunosorbent assay test was applied for evaluating viruses that may be involved in SHL etiology (varicella-zoster virus, cytomegalovirus, Epstein-Barr virus, hepatitis B virus, hepatitis C virus, mumps, rubella,

herpes simplex virus 1 and 2). A full-biochemistry panel was examined, including biochemistry parameters for kidney functions, liver functions and thyroid functions, coagulometry parameters, C-reactive protein (CRP), glucose and HbA1C, anions, and cations.

Radiologic Tests

Brain magnetic resonance imaging (1.5 Tesla) with gadolinium was performed on each patient for etiologic investigation. Evaluation of the acquired images was made by the same expert radiologist.

The Survey

The quality of sexual life was examined using the IIEF-5 questionnaire. The IIEF-5 questionnaire is frequently used to evaluate male sexual function. This survey consists of 5 questions, the first 4 questions are for ED and the last question is for sexual satisfaction (18). All questions were scored from 1 to 5 according to the degree of dysfunction (5= no dysfunction, 4= mild dysfunction, 3= mild-to-moderate, 2= moderate, and 1= severe). More detailed investigations should be conducted with the suspicion of ED in people with a questionnaire score of 21 or less. The low scores indicate higher grades of dysfunction (9,18).

The questionnaire was administered to the patients blindly, without knowing the participant's group, by the second male otorhinolaryngology specialist within 15 min. Additionally, the IIEF-5 questionnaire was grouped into the first 4 questions (Q1-Q4) and the last question (Q5). The initial (pretreatment) and 6th month (posttreatment) IIEF-5 scores, the first 4 questions (IIEF-5_{Q1-Q4}) scores, and the last question (IIEF-5_{Q5}) scores of the control group and SSHL patients were determined. Additionally, the number of subjects with suspected ED in the study groups according to the results of the questionnaire was also determined.

The Treatments

All patients received a combination of intratympanic steroid (ITS) therapy and hyperbaric oxygen therapy (HBOT). On the 1st, 3rd, 5th, 7th, 14th, and 30th days of ISSHL diagnosis, 6 doses of ITS treatment were administered once a day.

HBOT was applied at 2.5 atm pressure for 2 h a day for 20 sessions, starting from the first day of diagnosis. Intratympanic injections were performed using a binocular otology microscope. Cotton impregnated with lidocaine (Xylocaine 10 mg/dose spray) was placed over the tympanic membrane of the affected ear. After 10 min, the patient was positioned in the supine position. The head was rotated 45 degrees toward the unaffected ear. Cotton was removed from the external ear canal and visualization was achieved

to see the 4 quadrants of the tympanic membrane. First, a perforation located in the anterior superior quadrant of the tympanic membrane was created using a 27 gauge needle. Then, 1-mL dexamethasone (8 mg/2 mL) was delivered to the middle ear by puncture in the anterior inferior quadrant. After the injection, the patient remained in the same position and avoided speaking, yawning, and swallowing for 20 min.

Statistical Analysis

The calculation of the minimal subject number was performed using the G*Power program version 3.1 (19). SPSS Version 22.0 (SPSS Inc., USA) was used for statistical analysis. Normal distribution and homogeneity of data were analyzed with the Kolmogorov-Smirnov test and Levene's tests, respectively. Mann-Whitney U test, Wilcoxon signed-ranks test, and Pearson chi-square test were used in the statistical analysis of the survey results. The significance level was set as a p-value less than 0.05 ($p < 0.05$).

RESULTS

Forty-four SSHL patients were included in this study, and 19 (43.18%) of them formed the study group in accordance with the study criteria. The study group consisted of 12 (63.2%) male and 7 (36.8%) female patients, and the control group consisted of 9 (47.4%) male and 10 female (52.6%) participants. There was no difference between the groups in terms of subject gender (Pearson chi-square test, $p = 0.328$). The mean ages of the groups were 34.53 ± 7.48 [median = 31, min: 24-maximum (max): 46] for the SSHL patients and 30.95 ± 8.74 (median = 31, min: 18-max: 48) for the control group. No significant difference was found between the groups in terms of subject age (Mann-Whitney U test, $p = 0.236$).

In the PTA result analysis, the initial PTM of the patients was 48 ± 16.479 (min: 30-max: 90) dB. In the 6th month, the PTM was 24.368 ± 17.676 (min: 2-max: 70) dB. In the patients, mean gain with treatment was 23.632 ± 7.522 (min: 15-max: 40) dB (Figure 1).

In the evaluation of survey results, the initial IIEF-5 and IIEF-5_{Q1-Q4} scores of the patients were significantly lower than those of the control group ($p = 0.003$, $p = 0.003$, respectively). The initial IIEF-5_{Q5} scores of patients were lower than that of the control group. However, there was no significant difference between the groups in terms of the IIEF-5_{Q5} scores ($p = 0.937$). The 6th month IIEF-5 and IIEF-5_{Q1-Q4} scores of the patients were significantly higher than the initial scores ($p = 0.034$, $p = 0.016$). The 6th-month IIEF-5_{Q5} score was higher than the initial score. However, no significant difference was

found between the groups in terms of the IIEF-5_{Q5} scores ($p = 0.157$). In the comparison of the post-treatment IIEF-5 survey results of SSHL patients with the IIEF-5 survey results of the control group, no significant difference was found between the groups ($p > 0.05$) (Table 1).

In the IIEF-5 survey results, ED was suspected in 8 patients (42.1 %) in the control group, 17 patients (89.5%) in pretreatment ISSHL patients, and 8 patients (42.1%) in posttreatment ISSHL patients. When the groups were examined according to the presence of ED suspicion in the IIEF-5 questionnaire results, it was seen that the frequency of ED suspicion was significantly higher in ISSHL patients compared to the control group ($p = 0.002$). After ISSHL treatment, the number of patients with suspected ED was significantly less compared to the pre-treatment period [Pearson chi-square test, value = 9.471; degrees of freedom (df)=1; $p = 0.002$] and the significant difference between pretreatment ISSHL patients and the control group disappeared with ISSHL treatment (Pearson chi-square test, value=0.000; df=1; $p = 1.000$) (Table 2).

DISCUSSION

SSHL is a complex and controversial disease with its pathophysiology. Despite all advances in medicine, the cause of the disease cannot be determined in 90% of SSHL patients and it is called ISSHL (20). Idiopathic SSHL is related to many diseases, especially cardiovascular diseases (2,4). ED is one of the most common sexual disorders in men (5,10,21). ED, the frequency of which is gradually increasing due to lifestyle changes, is associated with many diseases (5-7). In this study, which is the first prospective study in English literature, we examined the relationship between these two diseases, which are associated with many conditions.

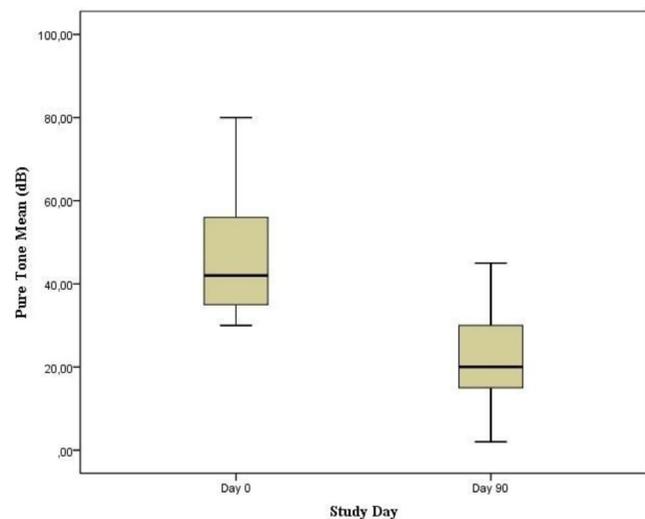


Figure 1. Evaluation of pure tone means by study days

Table 1. Analysis of IIEF-5 survey scores in patients with SSHL and healthy individuals (control group)

Questionnaire	Mean ± standard deviation (median)			p		
	Control group	Pretreatment SSHL patients	Posttreatment SSHL patients	Pretreatment vs. control	Posttreatment vs. control	Pretreatment vs. posttreatment
IIEF-5	21.05±3.837 (22)	18.11±2.826 (18)	20.89±3.725 (22)	0.003*	0.779	0.034†
IIEFF _{Q1-Q4}	16.894±3.142 (18)	14±2.582 (13)	16.684±3.02 (18)	0.003*	0.612	0.016†
IIEFF _{Q5}	4.053±0.911 (4)	4.1±0.737 (4)	4.21±0.63 (4)	0.937	0.781	0.157

SSHL: Sudden sensorineural hearing loss, IIEF: International Index of Erectile Function, *Mann-Whitney U test, p<0.05, †Wilcoxon signed-ranks test, p<0.05

Table 2. Analysis of the number of participants with suspected erectile dysfunction

Groups	Suspected erectile dysfunction* +, n (%)	Suspected erectile dysfunction* -, n (%)	p
Control	8 (42.1%)	11 (57.9%)	0.002†
Pretreatment SSHL patients	17 (89.5%)	2 (10.5%)	

SSHL: Sudden sensorineural hearing loss, IIEF: International Index of Erectile Function, *Suspected erectile dysfunction, the participant with an IIEF-5 survey score of 21 or less, †Pearson chi-square test, value=9.471; df=1; p<0.05

Because of our study, we found that the IIEF-5 questionnaire scores were significantly lower in ISSHL patients compared to the control group and the number of patients with suspected ED was significantly higher in this patient group (p<0.05). We found that the sexual disorders we detected in these patients responded to SSHL treatment, and there was no statistically significant difference between ISSHL patients and the control group, both in IIEF-5 scores and in the number of patients with suspected ED after treatment (p<0.05).

Normal sexuality, especially penile erection, is a complex process that is affected by hormone levels, neurogenic and psychogenic factors, vascular and hemodynamic factors (5). The disorders that may occur in all these factors result in sexual dysfunction (5,10). ED, which affects psychosocial health and QoL, is classified as organic, psychogenic, or mixed depending on its etiology (5,7,10). Endothelial dysfunction and vascular causes are responsible for most organic EDs (5,7,10). Therefore, ED is considered as an early warning for heart attack and stroke (10,11). The causes of psychogenic ED are psychological diseases such as anxiety, depression, and disorders in psychosocial life (5,7).

ED, 80% of which is due to organic etiologies, is associated with many diseases such as sleep disorders, inflammatory diseases, chronic diseases, obesity, allergic rhinitis, smoking, and alcohol addiction (5,7,10). In terms of otorhinolaryngology diseases, the relationship between ED and vertigo, obstructive sleep apnea, Meniere’s disease,

allergic rhinitis, and hearing loss has been reported in previous studies (16,22-24). In different studies conducted with patients with sensorineural hearing loss, it was determined that the sexual health of these patients was poorer compared to patients with normal hearing (16,23). In one of these studies, it was shown that while orgasmic function, sexual desire, and general satisfaction were negatively affected in patients with bilateral sensorineural hearing loss, erectile function, and sexual satisfaction was not affected (23).

To explain the pathophysiology of SSHL, vascular causes have been investigated in previous studies and possible causes such as traumatic, autoimmune, infectious, and metabolic events (1-4). The fact that the inner ear is end-organ with blood flow from a single artery, spontaneous recovery seen in patients with SSHL, ischemic cochlear histological findings shown by previous studies, and the increase in the frequency of coronary artery disease, stroke, and peripheral vascular disease in SSHL patients support vascular causes in the pathophysiology of SSHL (2,25,26). If SSHL is associated with these vascular diseases, due to possible microvascular causes in its pathophysiology, it may also be associated with ED, another disease in which vascular causes play a role in its etiology. Additionally, ISSHL patients have a poor QoL and impaired psychosocial status, which cause ED (5,7,10,27).

There are large-population-based retrospective studies examining the relationship between ED and SSHL (12,13). In

these studies, it was reported that SSHL is associated with ED, and SSHL is a risk factor for ED (12,13). However, there is no prospective study examining this relationship in English literature. We planned this prospective study to examine the relationship between ED and ISSHL. The IIEF questionnaire is a method that questions one-month sexual life (8). It is the most used in ED studies and is accepted as a standard for these studies (8,18). However, ED was defined by the National Institutes of Health as the penile erection inability for at least 6 months (7). The IIEF-5 is a shorter version of the IIEF survey and examines 6 months (7,17). Therefore, the IIEF-5 questionnaire was used in this study with the thought that it would be more appropriate. We included known factors that may cause ED among the exclusion criteria of our study and tried leaving only ISSHL disease as a possible cause of ED to ensure optimal standardization (5,7,10,14). Additionally, we excluded possible etiologies by using the widest range of laboratory and imaging tests specified in the literature and accepted SSHL patients as ISSHL patients (1,27). The primary treatment for sudden hearing loss is steroid therapy and intratympanic application of this treatment can be chosen as the primary treatment (28,29). In a previous study, it was shown that better results were obtained with ITS therapy in PTA average compared to systemic steroid therapy (29). Additionally, an advantage of ITS is that the systemic side effects of steroids are much less (28). Regardless of the route of steroid treatment, its combination with HBOT increases the success of the treatment (15). In this study, we applied dexamethasone intratympanically and combined the treatment with HBOT, in accordance with the literature, so that the systemic effects of the steroid would not affect our study (15,28,29).

In our study, the IIEF-5 and IIEF_{Q1-Q4} scores were significantly lower in ISSHL patients before treatment compared to the control group ($p=0.003$; $p=0.003$, respectively). Additionally, the number of patients with suspected ED according to the IIEF-5 questionnaire was significantly higher in ISSHL patients before treatment compared to the control group ($p=0.002$). According to the IIEF-5 questionnaires repeated after the treatment of ISSHL patients, IIEF-5 and IIEF_{Q1-Q4} scores were significantly higher than the pre-treatment values, and there was no significant difference compared with the control group scores ($p=0.034$; $p=0.016$, respectively). Additionally, according to the IIEF-5 questionnaire repeated in the post-treatment period, the number of patients with suspected ED was significantly less than before the treatment ($p=0.002$), and there was no significant difference compared with the control group ($p=1.000$). The results of our study are compatible with the literature and support the vascular hypothesis in the etiology of SSHL. In a study by Soyly Ozler and Ozler (23), many components of sexuality

were negatively affected in patients with sensorineural hearing loss, however, there was no negative effect on erectile function and sexual intercourse satisfaction. In the study of Bakır et al. (16), both erectile function and sexual satisfaction were negatively affected in patients with sensorineural hearing loss. Unlike the previous studies, this study reported that the presence of sensorineural hearing loss has a negative effect on erectile function (IIEF-5_{Q1-Q4}) and did not make a difference in sexual satisfaction (IIEF-5_{Q5}). Different results may be due to the difference between the pathophysiology of SSHL and sensorineural hearing loss. Our results, which differ from those of previous studies, may be due to the difference between the pathophysiology of SSHL and sensorineural hearing loss. While vascular disorders in the pathophysiology of ED are involved in the etiology of ISSHL, non-vascular cochlear and neuronal disorders are prominent in sensorineural hearing loss (30).

For the first time in the literature, we demonstrated the relationship between ED and ISSHL disease, there are quite a few studies in the literature about this relationship, with a prospective study. However, there are some limitations to our study. The first of these limitations is the limited number of subjects in our study. We included a limited number of subjects in the study because of the prospective design of the study. However, we calculated this number statistically (19). The second limitation is that the IIEF-5 test cannot directly diagnose ED. However, the IIEF-5 form is used reliably by many clinics in the diagnosis of sexual dysfunction and in determining whether there is improvement after the treatment given, because of its high accuracy rate (18). The final limitation of this study stems from the definition of ISSHL disease. Although we have ruled out many diseases that cause SSHL with many tests, patients diagnosed with ISSHL today may be diagnosed with a disease in the future.

CONCLUSION

ISSHL is not just an otological problem. ISSHL may be accepted as a risk factor for ED. ISSHL can affect sexual life and therefore QoL. There is a need to repeat the obtained data with larger sample numbers and to conduct molecular studies on the pathophysiology of ED seen in ISSHL patients.

ETHICS

Ethics Committee Approval: This prospective-case control study was conducted on patients and volunteers between November 2021 and May 2022 with the confirmation of the İstanbul University-Cerrahpaşa, Cerrahpaşa Faculty of Medicine Clinical Research Ethics Committee (decision no: 177948, date: 08.09.2021).

Informed Consent: All individuals signed an informed consent form.

Authorship Contributions

Surgical and Medical Practices: D.Ç., Concept: D.Ç., Design: D.Ç., Data Collection or Processing: D.Ç., S.U., Analysis or Interpretation: S.U., Literature Search: D.Ç., Writing: D.Ç., S.U.

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