Perceived Stress Level, Coping Styles and Temperament And Character Traits in Patients with Idiopathic Sudden Hearing Loss

Fatma Akyüz1, Arzu Karaman-Koç2, Semra Yılmaz3,

1. Bakırköy Dr. Sadi Konuk Training and Research Hospital Department of Psychiatry, İstanbul
2. Bakırköy Dr. Sadi Konuk Training and Research Hospital Department of Otolaryngology Head and Neck Surgery, İstanbul
3. Bakırköy Dr. Sadi Konuk Training and Research Hospital Department of Child and Adolescent Psychiatry, İstanbul

BACKGROUND

Sudden hearing loss (SHL) is characterized by loss of at least 30 dB in 3 consecutive audimetric frequencies which occurs within a period of three days(1). SHL can occur at any age but it affects more frequently patients with 43 - 53 years of age. While in 7-45% of the affected patients the cause of SHL can be definitively determined the etiology cannot be found in the majority of cases and the disease is termed as idiopathic (2). In studies SHL has been related with higher stress levels of affected patients and it have been suggested that acute or chronic stress may lead to hemoconcentration and partial/complete occlusion in the cochlear artery, thereby contributing to the development of sudden hearing loss (3).

It has been shown that the stress caused by talking in front of a crowd increases the heart rate and blood pressure, as well as causing vasoconstriction in normal coronary artery segments (4). The cochlea whose arterial feeding of is provided only by the labyrinthine artery is the end organ in terms of vascularization. Therefore, when a vasoconstriction occurs this organ will be more affected from the hypoxia or ischemia-induced damage. In their study Kim et al. suggested that the decrease in cochlear blood flow and related ischemia may play a role in the etiology of SHL (5). Similarly, it is suggested that life style and the resulting acute or chronic stress may cause hemoconcentration and partial or complete occlusion of the cochlear artery, which further may contribute to the development of sudden hearing loss (6).

Two other studies, although with limited methods and designs, rendered similar results (7). In a well designed but unpublished study by Mtinzel and Sander (oral
presentation), however, no differences in stress were found between a group of patients with SHL and those in a clinical control group (3).

In this study we aimed to compare the SHL patients with healthy controls in terms of their perceived stress levels, ways of coping with stress, and temperament and character traits. We hypothesized that the SHL patients have higher perceived stress levels and these patients’ temperament and character traits are related to their perceived stress level and coping styles.

METHOD:

Twenty-two patients who were admitted to Bakırköy Dr. Sadi Konuk Education Research Hospital Ear, Nose and Throat Clinic within the first 7 days of their complaint of sudden hearing loss and diagnosed with Idiopathic Sudden Hearing Loss in their examinations were included in this prospective study. Patients with psychiatric disorders, psychiatric treatment history and organic brain impairment/disease were excluded from the study. Each patient was internalised for 5 days inpatient treatment. On the first day of their hospital admission they were asked to full-fill the Perceived Stress Scale, Ways of Coping Inventory and Temperament and Character Inventory.

RESULTS:
The study was conducted with a total of 47 cases; 22 patients with SHL and 25 healthy controls. Their ages were ranged from 22 to 55 years and the average age was 39.19\pm9.51 years. Compared to the control group, SHL patients had higher scores of reward dependence (p<0.01) and lower scores of harm avoidance (p<0.01). The two groups were similar in terms of their styles of coping with stress. However, SHL patients had higher scores of perceived stress level than healthy controls and this difference was statistically significant (table 1 and figure 1). In groups there was no statistically significant correlation between perceived stress and temperament and personality inventory parameters (p>0.05).

Perceived stress scores were significantly higher in patients with hearing loss than the controls (p<0.01) (table 1 and figure 1).

**Table 1: Perceived Stress Scores in Groups**

<table>
<thead>
<tr>
<th></th>
<th>Perceived Stress</th>
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<tbody>
<tr>
<td></td>
<td>Mean</td>
</tr>
<tr>
<td>Patients with SHL</td>
<td>30.95</td>
</tr>
<tr>
<td>Controls</td>
<td>23.08</td>
</tr>
<tr>
<td>Total</td>
<td>26.77</td>
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</tbody>
</table>

*Independent Samples test (Student t test)  **p<0.01*

**Figure 1: Perceived Stress Scores in Groups**
CONCLUSİON:

In this study, we aimed to compare İdiopathic SHL patients with healthy controls in terms of stress perception, coping styles and traits of temperament and character. There was no statistically significant difference in Coping styles between the patient group and the control group. There was no statistically significant correlation between perceived stress levels and parameters of temperament and personality inventory in the groups. The perceived stress score was significantly higher in the patient group than the control group. When compared with the controls, patients with IAA showed lower avoidance scores and higher reward dependence scores.

Many experts suggest that the onset of SHL and TIN is mediated by stress. In our study, the patients with SHL had higher perceived stress scores than the controls. Certain single-case studies have reported the association between stress and SHL [8], as have some group studies that used qualitative interviews as assessment instruments [9]. Data from Hoffmeister's 1988 study [3] also lend support to the stress hypothesis. Patients suffering from SHL (N = 98) reported more stress than did 13 patients with morbus Meniere who were used as control subjects. However, no standardized measures were applied, and no quantitative statistical analysis of the data was conducted. Two other studies, though limited by method and design, rendered similar results [7]. In a well-designed but unpublished study by Mtinzel and Sander (oral presentation), however, no differences in stress were found between a group of patients with SHL and those in a clinical control group.

Claudia et al. (200) suggested that failure to cope with the stress caused by anxiety may play a role in the pathogenesis of Idiopathic SHL (3). However, in our study, the patient and control groups were not different in terms of scores of the problem solving, social support and avoidance subscales of the coping styles.

In the literature it has been reported that; psychosocial factors and acute or chronic stress may contribute to sudden hearing loss, and while personality characters have no effect on the SHL etiology they have important effects on the prognosis of the disease; for example while balanced emotional personality,
establishing good friendships, and reducing stressful factors are related to better prognoses, predisposition to addiction have worse prognosis (2,3).

Results:

In our study we found that compared to healthy controls, patients with SHL had lower scores of harm avoidance, higher scores of reward dependence and higher scores of perceived stress all of which were at statically significantly levels. These findings support the literature and underline the importance of the personality features in this disease. Psychological variables are important in the etiology and treatment of SHL and it is appropriate to take this into account.

References:


12. Neuser J, Knoop T. Sudden