Original Article

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Effect of Aphasia on the State-Trait Anxiety and Hopelessness Levels of the Family Members of Hemiplegic Patients

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Abstract

Objective: To investigate the state-trait anxiety and hopelessness levels of the family members/caregivers of patients who had developed aphasic or non-aphasic hemiplegia following a cerebrovascular event.

Material and Methods: We included a total of 40 hemiplegic patients, 20 aphasic and 20 non-aphasic, and 40 family members who provided care for these patients in this study. The patients' demographic features were recorded. The same investigator used the Gülhane Aphasia Test (GAT) to evaluate whether the patients were aphasic, the State-Trait Anxiety Scale to determine the anxiety level, and the Beck Hopelessness Scale to determine the hopelessness level of the family members.

Results: The mean age was 54.10±14.18 years for the aphasic patients and 66.70±13.44 years for the non-aphasic patients. There were 8 females (40%) and 12 males (60%) in both groups. All family members caring for the patients were female. The mean scale scores were as follows: state anxiety 47.8±6.64 (35–57), trait anxiety 52.25±7.91 (39–64), and hopelessness 11.65+1.81 (8–15) in the aphasic group; state anxiety 42.20±7.68 (29–59), trait anxiety 49.25±11.27 (27–71), and hopelessness 12.05±2.16 (8–16) in the non-aphasic group. There was no significant difference between the trait anxiety level and hopelessness level of the family members caring for aphasic or non-aphasic hemiplegic patients ($p>0.05$), whereas there was a significant difference between the state anxiety levels ($p<0.05$).

Conclusion: We found that the trait anxiety and hopelessness levels of family members caring for hemiplegic patients were not influenced by whether the patient was aphasic, whereas the state anxiety level was higher in the relatives of aphasic patients.

Keywords: Aphasia, anxiety, hemiplegia, hopelessness

Introduction

Cerebrovascular accident (CVA) is the most common cause of death in adults after heart disease and cancer, and it is one of the most common causes of disability. CVA cases that do not result in death in the acute period can cause many permanent health problems, with neurological ones being the most common (1,2).

Aphasia is defined as a language-related functional disorder that develops because of the damage of certain parts of the brain, and its degree, clinical features, and recovery vary from patient to patient (3-5). Aphasia is observed at a rate of 21%–38% following a CVA (6). Aphasia is a therapeutic, cognitive, and social problem (7-11). Many different methods have been attempted for aphasia rehabilitation, but the success depends on the correct analysis of the prognostic factors and consider-

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ation of the aphasic patient's family in addition to the patient (5). Aphasia rehabilitation is performed with a professional, multidisciplinary team approach in our clinic, and the "family" is seen as the most important participant of this team. It is therefore extremely important to determine the needs of the family for successful aphasic patient rehabilitation and increasing the patient and family quality of life.

The families of aphasic patients who have physical and communication problems following the cerebral lesion may have psychological problems during the period of adaptation to this new problem they are faced with. Several studies have evaluated the depression, strain risk factors, anxiety, and quality of life in the relatives of hemiplegic patients (12-17). The effect of aphasia on the state-trait anxiety and hopelessness levels of the family members of hemiplegic patients has not been previously studied. The aim of this study was to compare the anxiety and hopelessness levels of the family members/caregivers of aphasic or non-aphasic hemiplegic patients following a CVA.

Materials and Methods

Participants

This study was performed at our hospital between January 2008 and April 2008. A total of 40 patients who had developed hemiplegia due to CVA, with 20 having damage in the left hemisphere and 20 in the right hemisphere, and 40 family members/caregivers of these patients were included in the study. All patients had hemiplegia. Ethics committee approval was received for this study from the local ethics committee of Ankara Physical Medicine and Rehabilitation Training and Research Hospital. Written informed consent was obtained from patients and patients' family members who participated in this study.

Information was provided on the tests to be performed to all patients and their relatives and those volunteering in the study. All patients included in the study were enrolled into a neurological rehabilitation program consisting of neurophysiological, range of motion, balance and coordination, progressive resistive, posture, and ambulation exercises and occupational therapy. Family members/caregivers were not included the neurological rehabilitation program. They should be caregivers until the patients were discharged.

Inclusion Criteria

Patient inclusion criteria were as follows: being able to cooperate, a duration of 3–10 months following the CVA, right hand dominant, knowing Turkish (speaking and understanding Turkish), no previous CVA, no visual defect, and no psychiatric disorder. Bilateral hemiplegic patients (10 patients), patients who had developed non-CVA causes such as a tumor (2 patients), and patients with a neglect syndrome (3 patients) were not included in the study. Family members/caregivers who were illiterate (5 patients) or receiving psychiatric treatment (3 patients) were excluded from the study.

Assessment and Outcome Measures

Demographic properties of all patients were recorded. In addition, the Mini Mental State Examination scores of patients were evaluated (18).

The patients included in the study were administered the Gülhane Aphasia Test (GAT)-1, adapted to Turkish from the Boston Diagnostic Aphasia Test by Tanrıdağ (5), to evaluate language components such as listening comprehension, reading comprehension, repetition, and naming. The Standardization, Validity and Reliability Study of Gülhane Aphasia Test-2 (GAT-2) was not performed during the planning stage of the study. GAT-2 was published in May 2011. At the time of data collection, GAT-1 was used because it is available in our hospital.

During the second session, the family members/caregivers for the patients were provided the necessary explanations in a quiet environment, and the State Anxiety Scale developed by Spielberger (19), for which the reliability and validity studies have been performed by Öner and Le Compte (20,21), was administered. The scale consists of state anxiety and trait anxiety scales, each consisting of 20 items. The State Anxiety Scale defines how the individual feels at a certain time and under certain conditions. The Trait Anxiety Scale defines how the individual feels independent of the current situation and conditions. Both subscales are Likert-type scales consisting of 4 grades. Each scale has a separate question and answer key. The total score from the two scales varies between 20 and 80. A high score shows a high anxiety level, and a low score shows a low anxiety level.

After the State–Trait anxiety scale was administered, the Beck Hopelessness Scale developed by Beck et al. (22), for which the reliability and validity study has been performed by Seber (23), was used to determine the negative future expectations of the individual. The self evaluation scale consists of 20 items and is scored as 0 or 1. The possible scale scores vary between 0 and 20, and a high score indicates a high degree of hopelessness. The total interview and answering the scales took 45 min on an average. All tests were administered by the same person. The study was approved by the local ethics committee.

Statistical Analysis

The data were analyzed using the Statistical Package for the Social Sciences (SPSS Inc.; Chicago, IL, USA) package software. The state-trait anxiety and hopelessness levels of the family member/caregivers of the aphasic or nonaphasic patients were compared with the Mann–Whitney U test, whereas the effect of the educational status of the caregivers of the aphasic and non-aphasic hemiplegic patients on the state-trait anxiety and hopelessness levels was analyzed with the Mann–Whitney U test. The Spearman correlation test was also used to determine the relation between the patient's aphasia status and the hopelessness and state-trait anxiety levels of the caregivers. The significance level was accepted as $p<0.05$ for all statistical analyses.

Results

Table 1 presents the demographic features of the aphasic (Group I) and non-aphasic (Group II) cases. The Mini Mental State Exam scores of patients were also evaluated. Seventeen of our aphasic patients had pathologic group. Only three aphasic patients had above 24 points. There was no significant difference between the demographic findings, except with respect to the mean age of the two groups ($p>0.05$).

Table 2 presents the median scores for the listening comprehension, reading comprehension, repetition, and naming parameter subscores of the GAT test used to determine the presence of aphasia in patients where hemiplegia had developed following CVA. We found no difference between the sexes regarding the subsection scores.

All the family members for the patients in either group were female, and the mean age was 35.30±10.89 (22–57) years for first-degree family members/caregivers of aphasic (Group Ia) hemiplegic patients and 44.50±9.24 (31-57) years for first-degree family members/caregivers of non-aphasic (Group IIa) hemiplegic patients. The comparison of the educational status of the caregivers in the two groups showed that primary school graduates made up the largest group. Group Ia patients were cared for by their spouses in 70% cases, whereas for group IIa patients, the caregivers were daughters in 50% cases (Table 3). There was no difference between the demographic features of the two groups (p>0.05), except age.

Table 1. Demographic properties of aphasic (Group I) and non-aphasic (Group II) hemiplegic patients (n=40)

	Group I		Group II		
	(Mean±SD)	Min–max	(Mean±SD)	Min-max	p
Age	54.10±14.18	27-75 years	66.70±13.44	36-86 years	0.006
Gender	n	%	n	%	
Female	8	40	8	40	1.000
Male	12	60	12	60	
Education					
Not literate	5	25	8	40	
Primary school graduate	11	55	10	50	
Middle school graduate	-		-	-	0.196
High school graduate	2	10	2	10	
University graduate	2	10	-	-	
Occupation					
Male					
Worker	1	8.3	1	8.3	
Official	3	25	1	8.3	
Self-employed	5	41.7	3	25	0.440
Retired	3	25	7	58.4	
Female Housewife	8	100	8	100	

SD: standard deviation; min: minimum; max: maximum

Table 2. Gülhane Aphasia Test 1 scores of aphasic hemiplegic patients

Parameter	(Mean±SD)	Min–max
Listening comprehension	57.50±32.07	0–95
Reading comprehension	25.10±37.60	0–100
Repetition	17.50±41.78	0–100
Naming	34.00±39.63	0–100

SD: standard deviation; min: minimum; max: maximum

Analysis of the mean scale scores of the two groups revealed a score of 47.80±6.65 (35–57) for state anxiety, 52.25±7.91 (39–64) for trait anxiety, and 11.65±1.81 (8–15) for hopelessness in Group Ia and 42.20±7.68 (29–59) for state anxiety, 49.25±11.27 (27–71) for trait anxiety, and 12.05±2.16 (8–16) for hopelessness in Group IIa. Comparison of the Group Ia and Group IIa individuals for trait anxiety and hopelessness levels showed that the aphasia status of the patient did not make a significant difference for the hopelessness and trait anxiety levels (p>0.05) but did make a significant difference for state anxiety (p=0.015) (Table 4).

We also analyzed the effect of the educational status of the Group Ia and Group IIa individuals on the state, trait anxiety, and hopelessness levels and found no significant effect (p>0.05) (Table 5).

Analysis of the relation between the presence of aphasia in the patients and state-trait anxiety and hopelessness levels of the family members/caregivers showed no significant relation between aphasia and the trait anxiety and hopelessness levels (p>0.05), whereas there was a significant relationship between aphasia and the state anxiety levels (p=0.013) (Table 6). There was also a significant relationship between hopelessness and the state and trait anxiety and between state anxiety and trait anxiety (p<0.05).

Table 3. Demographic properties of first-degree family members/ caregivers of aphasic (Group Ia) and non-aphasic (Group IIa) hemiplegic patients (n=40)

	Group Ia	Group IIa	
	Mean±SD (Min–max)	Mean±SD (Min–max)	p
Age	35.30±10.89 (22–57 years)	44.50±9.24 (31–57 years)	0.006
Gender	n (%)	n (%)	1.000
Female	20 (100%)	20 (100%)	
Male	-	-	
Education	n (%)	n (%)	1.000
Primary school graduate	12 (60%)	13 (65%)	0.752
High school graduate	8 (40%)	7 (45%)	
Relation to patient	n (%)	n (%)	1.000
Spouse	14 (70%)	7 (35%)	0.217
Daughter	4 (20%)	10 (50%)	
Daughter-in-law	2 (10%)	3 (15%)	

SD: standard deviation; min: minimum; max: maximum

Discussion

The spontaneous recovery after aphasia is influenced by many factors that affect the prognosis and takes place different-

Table 4. Comparison of state-trait anxiety and hopelesness levels of first-degree family members/caregivers of aphasic (Group Ia) and non-aphasic (Group IIa) hemiplegic patients (n=40)

		State anxiety				Trait anxiety				Hopelesness			
	n	Mean rank	Sum of rank	U	p	Mean rank	Sum of rank	U	p	Mean rank	Sum of rank	U	p
Group Ia	20	25.0	500.0	110.0	0.015*	22.20	444.00	166.0	0.357	19.38	387.5	177.5	0.537
Group IIa	20	16.0	320.0			18.80	376.00			21.63	432.5		

U: Mann–Whitney U test
* p<0.05

Table 5. The effect of the educational status of first-degree family members/caregivers of aphasic (Group Ia) and non-aphasic (Group IIa) hemiplegic patients on state-trait anxiety and hopelesness levels

			State anxiety				Trait anxiety				Hopelesness			
	Educational status	n	Mean rank	Sum of rank	U	p	Mean rank	Sum of rank	U	p	Mean rank	Sum of rank	U	p
Group Ia	Primary school graduate	12	11.21	134.5	39.5	0.510	11.96	143.5	30.5	0.175	11.13	133.5	40.5	0.549
	High school graduate	8	9.44	75.5			8.31	66.5			9.56	76.5		
Group IIa	Primary school graduate	13	10.15	132	41.00	0.721	11.46	149	33.00	0.321	11.4	143.5	38.5	0.576
	High school graduate	7	11.14	78			8.71	61			9.5	66.5		

U: Mann–Whitney U test

Table 6. Relation between the presence of aphasia in the patients and state-trait anxiety and hopelessness levels of the first-degree family members/caregivers of hemiplegic patients

	State anxiety		Trait anxiety		Hopelesness	
Aphasia	r	p	r	p	r	p
	-0.391	0.013*	-0.147	0.364	0.099	0.543

r: Spearman correlation analyses; *p<0.05

ly in every case. These factors include the patient's age, gender, educational status, hand dominance, reason for aphasia, lesion side, location and size, the time since the event, and the participation of the family members caring for the patient during rehabilitation (24,25). We therefore aimed to define the effect of the presence of aphasia on the hopelessness and anxiety levels of the family members/caregivers of patients who had developed hemiplegia following a CVA.

The effect of aphasia on the state-trait anxiety and hopelessness levels of the family members of hemiplegic patients has not been previously studied.

The aim or our study was to investigate the state-trait anxiety and hopelessness levels of the family members/caregivers of hemiplegic patients. Because depression is a more commonly studied issue in our area, we have not included it in our study. We found that the trait anxiety and hopelessness levels of the family members/caregivers of these patients were not influenced by whether the patient was aphasic, whereas the state anxiety level was higher in the relatives of aphasic patients.

The State-Trait Anxiety Inventory is the definitive instrument for measuring anxiety in adults. It clearly differentiates between the temporary condition of "state anxiety" and the more general and long-standing quality of "trait anxiety" (19). In our study, it was found that the trait anxiety of the family members/caregivers of hemiplegic patients was not influenced by whether the patient was aphasic, whereas the state anxiety level was higher in the relatives of aphasic patients. It was explained that the family members/caregivers of aphasic hemiplegic patients become accustomed to the situation over the course of time.

Our analysis of the effect of the aphasic and non-aphasic patients on the state-trait anxiety and hopelessness levels of the family members/caregivers only revealed that educational status had no effect on the state anxiety and trait anxiety levels and hopelessness level in Groups Ia and IIa according to Table 5.

Comparison of the mean hopelessness and state and trait anxiety scores of the caregivers for the female and male hemiplegic patients in either group revealed that caregivers for male patients had higher scale scores, but this difference was not statistically significant (p>0.05). This situation could be related to caring to male patients difficulties.

Other studies have evaluated the depression, strain risk factors, and anxiety in the relatives of hemiplegic patients (12-16). Rombough et al. (26) reviewed articles investigating psychological anxiety in caregivers of hemiplegic patients with or without aphasia and reported that the literature on the subject was inadequate. We also did not encounter any studies on the subject in the literature. We found that the trait anxiety and hopelessness levels of the family members/caregivers of hemiplegic patients were not influenced by whether the patient was aphasic but that the state anxiety level was higher in family members of aphasic patients. Studies evaluating the anxiety and hopelessness levels in the caregivers of aphasic or non-aphasic hemiplegic patients on a larger number of subjects are therefore needed. It is well known that the phase of recovery is important for the understanding of the experienced emotions and burden and anxiety (27-30). Information about the additional demographic and clinical features of the patients, which may also affect the anxiety of caregivers, should be evaluated. This is a limitation of our study. Further research by including additional demographic and clinical characteristics should be planned.

An unfavorable psychological condition of the caring family member can become an obstacle in the recovery of the hemiplegic patient and can have a negative influence on the treatment and quality of life by creating psychological and social restrictions.

Conclusion

Determining the psychological problems experienced by the caregiver of the aphasic patient and providing the necessary help will make it possible for these individuals to adapt to the treatment of the person they are caring for and to increase the quality of life of both the patient and his/her family by making them an active member of the rehabilitation team.

Ethics Committee Approval: Ethics committee approval was received for this study from the ethics committee of Ankara Physical Medicine and Rehabilitation Training and Research Hospital.

Informed Consent: Written informed consent was obtained from patients and the parents of the patients who participated in this study.

Peer-review: Externally peer-reviewed.

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