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Original Article

Psychosocial status and sleep quality of the patients with idiopathic intracranial hypertension

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Abstract

Aim: To investigate the level of depression and anxiety measures, sleep quality indexes and to measure the quality of life in patients with idiopathic intracranial hypertension (IIH).

Material and Methods: Using a case-control cross-sectional design, 17 patients with IIH were compared with 16 healthy controls of similar age and gender. Patients were assessed for aggression, depression, and anxiety using the Buss-Perry Aggression Questionnaire, the Beck Depression Inventory (BDI) and the Beck Anxiety Inventory (BAI). The quality of life levels was assessed by the 36-Item Short-Form Health Survey (SF-36). The sleep quality of the individuals was evaluated using the Pittsburgh Sleep Quality Index (PSQI), STOP questionnaire, Epworth sleepiness scale (ESS).

Results: The scores of BDI and the BAI were higher in the patient group, however, there were no significant differences (p=0.36, p=0.14, respectively). The results of the questionnaires related to sleep quality including PSQI, STOP questionnaire and ESS were worse in the patient group; however, no statistical differences were found (p=0.65, p=0.14, p=0.33, respectively). All of the eight domains of the SF-36 were also compared between the groups which revealed that the scores of all of the subitems were lower in the patient group. However, the statistical difference was only found in the subitem of 'energy/fatigue' (p = 0.02).

Conclusion: Our study results provide encouraging conclusions remarking the worse psychosocial status in patients with IIH. The relevance and clinical impact of psychological status and quality of life in patients with IIH need to be investigated in future large-scale studies. Besides, the low energy/fatigue measures in IIH patients and its temporal course after the initiation of IIH treatment may constitute crucial topics to be investigated in these studies.

Keywords: Idiopathic intracranial hypertension; psychological status; quality of life; sleep quality; energy and fatigue

INTRODUCTION

Idiopathic intracranial hypertension (IIH) is characterized by raised intracranial pressure (ICP) with normal neuroimaging and normal cerebrospinal fluid content (1). Symptoms of IIH include headaches, papilledema and eventually optic nerve atrophy, transient visual obscuration, and tinnitus. The annual incidence rate of IIH in the general population is 1 to 2 per 100,000 people (2). However, its incidence may increase up to 4 to 21 per 100,000 in obese women between the ages of 15 and 44 years (2,3).

Although extensive research has been conducted regarding the clinical evaluation processes and treatment of IIH, the psychosocial impact of this condition and its psychosocial correlates have rarely been investigated (4, 5). In the crucial study by Kleinschmidt et al. (4), higher levels of anxiety and depression were found among the patients with IIH than among healthy individuals. The patient group also had decreased quality of life measures according to the control groups (4). In another study by Kesler et al., the authors compared hostility, anxiety and autobiographical memory (a correlate of depression) levels between IIH patient group, healthy control group and headache control group. In conclusion, they found that patients with headaches, whether of the general origin or related to IIH, had a poor psychosocial profile (5). In our clinical practice, we observe that patient with IIH have more psychological burdens such as increased levels of anxiety, depressive mood and hostility. Based

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on the rarity of related literature data and our subjective observations, we have aimed to investigate the levels of anxiety, depression, and aggression in our patients with IIH and compare these findings with a control group of age- and the gender- matched individuals. We have also aimed to investigate the correlates of the quality of sleep in our patient group, which has been suggested several times to be pathophysiologically associated with IIH in recent studies (6-8).

MATERIAL and METHODS

This cross-sectional study was conducted between April 2019-July 2019. The ethical approval was obtained from the Ethics Committee of Bozok University Medical Faculty. The study was performed in accordance with the principles stated in the Declaration of Helsinki, and written informed consent was obtained from all participants prior to the study.

Selection of patients and healthy control individuals

Seventeen patients with IIH and 16 healthy controls participated voluntarily in the study. The IIH patients met the Modified Dandy Criteria (9) as mentioned above. The patients were recruited from the Neurology Clinic, Yozgat City Hospital, Turkey who were diagnosed within the last three-year period (three months to three years). Except two patients with mild anemia, blood test results including hemogram, general biochemical tests, B12, folic acide were within normal limits in all the patients. Healthy controls consisted of individuals who had admitted to the Neurology clinic due to nonspecific symptoms such as short-term headache or dizziness and those who had not any neurological disease. The patients with complaints of headache lasting more than one week were not included in the study to exclude the possible confounding effect of headache in the comparative analyses. They were selected specifically according to age and gender to match the IIH group. Patients' age, weight, and gender were recorded. In the IIH group, all the patients were under medical treatment and surgical treatments such as a shunt or optic nerve sheath fenestration were not required in any of them. To compromise a homogeneous group, patients with exacerbation of the symptoms or newly diagnosed patients without initiation of therapy were not included in the study.

Instruments

All individuals were asked to complete the self-report questionnaires for the assessment of anxiety, depression, sleep quality, level of aggression, and quality of life. The Beck Depression Inventory (BDI), the Beck Anxiety Inventory (BAI) and the Buss-Perry Aggression Questionnaire (BPAQ) have been used for the asessement of anxiety, depression and aggression, respectively. The Pittsburgh Sleep Quality Index (PSQI), the Stop questionnaire and the Epworth sleepiness scale (ESS) have been used for evaluation of the sleep quality and obstructive sleep apnea syndrome. In addition, the 36-Item Short-Form Health Survey (SF-36) has been assessed in all individuals and all the eight domains included in the SF-36 [limitations due to physical health problems (RP), physical functioning (PF), social functioning (SF), bodily pain (BP), general mental health (MH), energy/fatigue (EF), role limitations due to emotional problems (RE), and general health perceptions (GH)] have been evaluated, separately. Of note, the reliability and validity of all of the above mentioned questionnaires have been demonstrated in the Turkish population in the previous reports (10-18).

Statistical analyses

We have performed a power analysys using GPower 3.1 program. The results revealed that there is a 41.1 % change of correctly rejecting the null hypothesis of no difference between proportions with 15 participants in Group 1 ad 15 participants in Group 2. Other statistical analyses were performed using the SPSS statistics 20 program. Continuous variables are specified as mean ± standard deviation. The compliance of the variables with normal distribution was evaluated by the Shapiro-Wilk tests. The comparative analyses between the patient group and healthy control group was made using Student's t-test for normally distributed variables and the Mann-Whitney U test for non-parametric variables. The chi-square test was used for the comparison of qualitative data. A p value of <0.05 was considered to be statistically significant.

RESULTS

Seventeen patients with IIH and 16 healthy control individuals were enrolled in this study. All of the patients with IIH were under acetazolamide treatment and no permanent visual loss had been developed in any of the patients. Remarkably, symptoms were resolved under medical therapy in all of the patients and the evaluations included in this research were performed during the resolution of the symptoms in all the patients. The mean age of the patients was 40.68±10.53 whereas it was 38.29±9.45 in the healthy control group (p=0.497). The score of BDI and BAI were higher in the patient group, however, there were no significant differences (14 (4-24.5)/8 (5-14.5); 12 (6.5-26)/8 (4-16), respectively). The results of the questionnaires related to sleep quality including PSQI, STOP questionnaire and ESS were worse in the patient group, however, no statistical differences were found. All of the eight domains of the SF-36 were also compared between the groups which revealed that the scores of all of the subitems were lower in the patient group. However, the statistical difference was only found in the subitem of 'energy/fatigue' (p = 0.02). On the other hand, the score of the Buss perry aggression questionnaire was not higher in the patient groups as there was no significant difference (table 1).

On the other hand, although no systematical effort has been conducted, most of the patients have stated that levels of depression, anxiety were higher and quality of life indexes were lower during the period prior to the initiation of IIH treatment.

Table 1. Comparisons of demographic data. sleep quality and psychosocial status between patient and the healthy control groups

		Patients, n=17 [Mean ± SD, Median (IQR)]	Healthy Controls, n=16 [Mean ± SD, Median (IQR)]	P value
Age		40.68 ± 10.53	38.29 ± 9.45	0.49
Gender (F/M)		1/16	1/15	0.742
Education status	Primary school graduate	10	12	0.78
	High-school graduate	4	4	
	Bachelor's degree	2	1	
Beck depression inventory		14 (4-24.5)	8 (5-14.5)	0.36
Beck anxiety inventory		12 (6.5-26)	8 (4-16)	0.14
Pittsburg sleep quality index		4.5 (2-8)	4 (2.5-6)	0.65
Stop questionnaire score		2 (0.25-2)	1 (0-1.5)	0.14
Epworth sleepiness scale		7.00 ± 5.34	5.52 ± 2.93	0.33
Physical functioning		62.81 ± 27.32	69.11 ± 29.69	0.53
Role limitations due to physical health		50 (0-87.5)	75 (25-100)	0.27
Role limitations due to emotional problems		33.3 (0-83.3)	66.6 (33.3-100)	0.26
Energy/Fatigue		42.81± 23.87	60.88 ± 18.13	0.02*
Emotional well-being		52.37 ± 19.86	63.05 ± 15.26	0.09
Social functioning		65.62 ± 20.66	75.11 ± 25.33	0.24
Pain		60.87 ± 20.11	56.58 ± 15.72	0.49
General health		48.12 ± 23.08	57.35 ± 19.29	0.22
Buss perry aggression questionnaire		56.58 ± 15.72	60.87 ± 20.11	0.49

DISCUSSION

In this cross-sectional study, we have found that IIH patients had higher scores on BDI and BAI. Besides, they had a worse quality of sleep and quality of life in comparison to age- and the gender-matched control group. However, the only statistically significant difference was found in the EF subitem of SF-36 among the overall measurements used in this study . The results of our study were relatively in accordance with the previous reports (4,5). However, there may be some differences to be investigated in detail. First, no statistical differences were found in anxiety, depression levels, subitems of the quality of life indexes (other than EF) and sleep quality indexes. Kleinschmidt et al., firstly, investigated the levels of depression, anxiety, and quality of life, and compared them with control groups of weight- and age-matched patients as well as age-matched patients of normal weight. In conclusion, they found that the patient group had higher levels of depression and anxiety, and decreased quality of life measures than the control groups (4). The superiority of this study was that the authors also involved the weight-matched control group, hence, excluded the effect of obesity which is known to be at high prevalence in IIH (19) and also leads to increased levels of depression and anxiety as well as decreased quality of life measures (20), potentially constituting a crucial confounding factor. In the other study by Kesler et al., the authors also included a control group who compromised from patients with headaches, not associated with an underlying IIH (5). Via this method, they have also tried to evaluate the confounding effect of headache; hence, evaluate the correlates of solely IIH. In conclusion, they have found that patients with headaches, whether of the general origin or related to IIH, had higher levels of depression and anxiety measures. However, they compromised their control groups from small numbers of participants (healthy control group: n=9; headache controls, n=11) and they have not evaluated the quality of life measures as well as sleep quality indexes. Our results partially confirm these literature data, however, most of our analyses did not reach statistically significance, probably being related with the low number of participants which may constitute a crucial limitation of the study.

The only statistical difference was found in the subitem of EF. Recent studies have remarked on the close association between chronic fatigue syndrome and IIH (21-24). Such that, Higgins et al. hypothesized that chronic fatigue syndrome may represent an incomplete form of IIH, with average cerebrospinal fluid pressures much lower than in the syndrome in full, usually manifesting subtler symptoms, but characterized by favorable symptomatic responses to lumbar puncture (22). In another report, Hulens et al. emphasized that IIH and chronic fatigue syndrome may share a large variety of symptoms that might all be explained by the same pathophysiology of increased cerebrospinal fluid pressure (24). In the light of these data, the lower scores of the EF, we found in the

IIH group, supports the literature data and may provide substantial contributions in this regard. However, we have not investigated the temporal course of these symptoms from the initial diagnosis to the post-treatment period, which might potentially be resolved by IIH therapy. Taken together, we think that the temporal course of symptoms related to EF and their potential recovery by IIH treatment may be investigated in future prospective studies. Remarkably, in the unique report by Kleinschmidt et al., the EF subitem of SF-36 was also investigated in IIH patients, and it was found to be in lower levels of function than the normal weight controls (4). However, the difference did not sustain in the comparisons between IIH and weight-matched controls (4). This point, although does not have sufficient literature support, may also remark the potential role of obesity in this interaction between lower EF levels and IIH. The effect of obesity in this interaction also needs to be investigated in future researches.

On the other hand, aggression scores were not higher in the IIH group which was also in accordance with the results of the study by Kesler et al (5). Hostility and anger have been previously associated with headache conditions (25,26). For example, aggression was found to be a common feature in chronic migraine and cluster headaches (25,26). Besides, aggressive and anger-related content in dreams was found to precede migraine attacks (27). However, our study results in light of the limited literature data do not support the view of an association between aggressive mood and IIH.

The main limitation of our study was that our study group was not large enough, such that, power analysis revealed a narrow confidence interval. Besides, we have not included a group of patients with headache, not related to IIH, which avoid investigating solely the association between IIH and the addressed psychosocial correlates. For instance, Kesler et al., in their study investigating the psychological correlates of IIH, included 11 headache controls and found that patients with headaches, whether of the general origin or related to IIH, have a poor psychosocial profile (5). However, we would like to state that all of our patient group were treatment and, their symptoms were nearly totally resolved under medical treatments. No of them had suffered from permanent visual loss and no surgical therapy was needed in any of them. We think that constituting such a group with benign clinic might have reduced the possible confounding effects of other symptoms (headache, visual disturbances, etc) in the results of associations. Besides, we have not excluded the effect of obesity, a crucial morbidity of IIH, which may also lead to psychosocial disturbances, independently. This point may also constitute another limitation of our study. However, in the previous report by Kleinschmidt et al., the impact of obesity in IIH patients was specifically investigated, and the authors did not find it alone as an explanation for the higher levels of depression and lower levels of quality of life (4).

CONCLUSION

In conclusion, although most of them did not reach statistical significance, our study results provide encouraging conclusions remarking the worse psychosocial status in patients with IIH. The relevance and clinical impact of psychological status and quality of life in patients with IIH need to be investigated in future large-scale studies. Of note, we also think that the psychological status and quality of life indexes may be investigated specifically during the active period (or period prior to initiation of treatment) of IIH which might reveal more devastating results. The results of these studies may provide crucial perspectives to be kept in mind in routine clinical practice. Finally, the low EF measures in IIH patients and its temporal course after the initiation of IIH treatment may constitute crucial topics to be investigated in these studies.

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