

Sleep Disturbances in Patients with Malignancy and Non-Malignancy

Hakan Atalay¹, Naz Berfu Akbaş¹, Cengiz Pata², Başak Oyan Uluç³

¹Department of Psychiatry, Yeditepe University Hospital, İstanbul, Turkey

²Department of Gastroenterology, Yeditepe University Hospital, İstanbul, Turkey

³Department of Medical Oncology and Hematology, Yeditepe University Hospital, İstanbul, Turkey

Abstract

Aim of the study was to evaluate sleep quality in a small sample of patients with gastro-esophageal reflux disease (GERD) comparing them with the patients under treatment in oncology department. Forty-eight patients were included in the study, 22 of them were recruited from the oncology department (oncology patients: OnPs) and 26 from the gastroenterology department (gastroenterology patients: GEPs) at a university hospital. By senior psychology students, the Hospital Anxiety and Depression Scale and the Pittsburg Sleep Quality Index were administered to the patients. There was no significant difference between the two groups regarding anxiety and depression scores of the patients and their total sleep quality scores. Nevertheless, it has been found that GEPs had higher anxiety scores than OnPs. The regression analysis demonstrated that sleep quality scores are determined only by anxiety scores and that being an oncology or gastroenterology patients, being at a certain age, or gender have no effect on total sleep quality scores.

Key words: Sleep, gastro-esophageal reflux disease, malignancy, anxiety, depression

(Rec.Date: Jun 22, 2012 - Accept Date: Sep 04, 2012)

Corresponding Author: Hakan Atalay, Psychiatry Department of Yeditepe University Hospital, Devlet Yolu Ankara Cad 102/104 Kozyatağı, TR-34752 İstanbul/Turkey
Telephone: +90 312 5953363
E-mail: hakanatalay2005@gmail.com

Introduction

Gastro-esophageal reflux disease (GERD) is the most common disease of the esophagus, affecting up to 40% of adults in the USA [1,2]. Typical symptoms of GERD include heartburn, abdominal discomfort, dysphagia, belching and acid regurgitation [3]. About 75–80% of patients with GERD report occurrence of their symptoms at night [4,6]. Heartburn and other gastro-esophageal reflux disease (GERD) symptoms experienced during the night commonly cause sleep disturbances, including arousal from sleep, increased wakefulness, and overall poor sleep quality [7,8]. Research also indicated that patients with dyspepsia or heartburn had higher scores in terms of anxiety, depression, and other psychiatric symptoms [9]. However, the role of sleep in the clinical presentation of gastro-esophageal reflux disease (GERD) has been largely ignored.

In the present study, we aimed to compare sleep disturbances in patients with GERD with the patients under treatment in oncology department, since little is also known about sleep quality in the people with cancer, whereas sleep disturbance is one of the most common symptoms in patients with malignancy [10-16]. Anxiety and depression, known as the most common factors influencing sleep quality, are also the most prevalent psychiatric disorders faced by patients with malignancy [17,18]. Keeping these in mind, we evaluated sleep quality in the patients with the GERD by comparison of their sleep quality scores with those of patients with malignancy, which themselves were reported to have sleep problems.

Method

The study was approved by the local research ethic committee of the university and was carried out in one month's period during which the psychology students underwent training at the psychiatry department of the university hospital. They interviewed with fifty-four patients. Six patients were excluded from the study because their physical disabilities could not allow to effectively communicating with the students. Thus, forty-eight patients were included in the study, 22 of them were recruited from the oncology department and 26 from the gastroenterology department. The patients from the gastroenterology department were chosen for the study according to the results of endoscopy carried out by an experienced

gastroenterologist (CP), while those from the oncology departments were selected by an oncologist-hematologist (BOU), according to their successive admissions at the outpatient facility. She assessed if the patients were in such a good health that is allowed them to understand the study conditions and to report on their health status. As a result, the inclusion criteria of gastroenterology patients (GEPs) were that they have a positive endoscopy result regarding gastro-esophageal reflux disease (GERD), while for the oncology outpatients (OnPs) there were no exclusion criteria, except that they are willing and healthy enough to give information. Senior psychology students made face-to-face interviews with the patients in order to obtain the whole study data. They received the verbal informed consent of the patients after explaining the study process in detail, and they gave the scales used in the study.

The Turkish versions of the Hospital Anxiety and Depression (HAD) scale [19,20] and the Pittsburgh Sleep Quality Index (PSQI) [21,22] were administered to the patients for assessing their anxiety and depression levels and their subjective sleep quality. Quantitative data are given as mean $\pm$ SD. The two study groups were compared by χ^2 tests in terms of categorical variables and by t tests in terms of continuous variables. Pearson's correlation coefficients and linear regression were used to examine the relationship between the PSQI scores and other demographic and clinical variables.

Results

Fifty-nine per cent of oncology patients (OnPs) were female while this rate was 64% in gastroenterology patients (GEPs) ($\chi^2 = .11$, $p > .05$). The average ages of OnPs were 57.4 (SD: 13.7), GEPs were 41.2 (SD: 10.2). Age difference between two groups was statistically significant ($t = 4.5$; $p < .05$). Comparisons between two groups in terms of additional physical and psychiatric disease(s) did not demonstrated a statistically significant difference ($\chi^2 = .3.2$; $p > .05$ and $\chi^2 = .57$; $p > .05$, respectively). Education, disease duration, and scores on the scales administered to the patients are shown in Table-1. There appeared no significant difference between two groups regarding anxiety and depression scores of the patients and their total sleep quality scores. Although statistically insignificant, it has been found that GEPs had higher anxiety scores than OnPs, whereas OnPs had higher depression scores than GEPs.

Table-1: Relationships between education levels and disease duration of the patients and their HADS and PSQI scores.

	Oncology	Gastroenterology	t	p<.05
	Patients	Patients		
Education (yrs)	10.4(3.8)	10.9(4.2)	-.5	NS
Disease duration (mo)	.16(.3)	.40(.9)	-1.0	NS
HADS-Anx ^a	6.5(4.8)	7.2(5.1)	-.4	NS
HADS-Dep ^b	8.1(5.1)	6.3(3.9)	1.3	NS
PSQI ^c (Total)	7.7(5.2)	6.2(3.9)	1.1	NS

NS: Non-significant

^a: HADS-Anx: The Hospital Anxiety and Depression Scale – Anxiety Scores

^b: HADS-Dep: The Hospital Anxiety and Depression Scale – Depression Scores

^c: PSQI: The Pittsburgh Sleep Quality Index

Table-2: The correlation coefficients of the PSQI scores with age, educational level, and the depression and anxiety scores (Pearson correlation coefficients)

	Age	Education	PSU ^a	HADS-Anx ^b	Duration	HADS-Dep ^c	PSQI ^d (Total)
		(yrs)			(mo)		
Age	1.000	-.228	.177	-.162	.177	.002	-.076
Education		1.000	-.100	-.329*	-.192	-.057	-.211
HADS-Anx ^a				1.000	-.021	.208	.341*
Duration					1.000	.099	-.056
HADS-Dep ^b						1.000	.104
PSQI ^c -Total							1.000

*: p <.05

^a: HADS-Anx: The Hospital Anxiety and Depression Scale – Anxiety Scores

^b: HADS-Dep: The Hospital Anxiety and Depression Scale – Depression Scores

^c: PSQI: The Pittsburgh Sleep Quality Index

In order to examine the factors that are likely to affect total sleep quality, a correlation analysis was applied to the whole group (Table-2). According to these analyzes, total sleep scores were found to be correlated only with anxiety scores of the patients ($r=.34$).

A multiple correlation analysis (Pearson correlation analysis), where variables with high levels of correlations and type of disease were admitted as independent variables and sleep quality as dependent variable, was applied to both of groups. The results demonstrated that sleep quality scores are determined only by anxiety scores and that whether any patient is at a certain age/gender, and has GERD or malignancy have no effect on total sleep quality scores (Table-3).

Table-3: Predictors of total PSQI scores (Multiple linear regressions)

Regression model R= .34 R ² = .09 F: 5.9 P: .02				
Predictors	Beta	t	p	
Constant	4.7	4.2	.000	
HADS-Anx	.31	2.4	.019	

Note: Variables involved in the regressions are age, patient group, disease duration, the Hospital Anxiety and Depression Scale (HADS-Anx and HADS-Dep) scores.

Discussion

Research demonstrated that heartburn and other gastro-esophageal reflux disease (GERD) symptoms experienced during the night commonly cause sleep disturbances and that patients with dyspepsia or heartburn scored higher with regard to anxiety and depression. In addition, some studies have suggested that psychological factors such as anxiety and depression play a part in the development of GERD [23,24]. In the present study, however, we did neither find any significant difference in the total sleep quality scores of the two group of patients, nor in their anxiety and depression scores. The only statistically significant result between the two groups is that GEPs had higher anxiety scores than OnPs. In addition, the oncology patients had a little higher depression scores on the HAD scale than GERD patients, although this

difference did not reach at a statistically significant level. When a correlation analysis was applied to the whole group, total sleep scores were found to be correlated only with anxiety scores of the patients. The results demonstrated that sleep quality is determined only by anxiety scores. Whatever any patient is at a certain age/gender, and has GERD or malignancy have no effect on total sleep quality scores. These results are in accordance with a recent study [25] carried out on a clinical psychiatric sample of 212 patients, demonstrating that only age and the state anxiety scores best predicted the PSQI scores. In that study, we found a relationship between the state anxiety (the Spielberger State Anxiety Inventory) and the insomnia (the Pittsburgh Sleep Quality Inventory) scores of the patients without such a relationship between the trait anxiety (the Spielberger Trait Anxiety Inventory) and depression (the Beck Depression Inventory) scores. Together with that study, we may reasonably conclude that presence of anxiety should also suggest additional sleep problems in both psychiatric and medical patients and that they should also be assessed in this respect.

The present study has clearly several limitations yet, resulting from mainly small sample sizes of both patient groups. Additionally, the data were based on patients' self-reported experience of sleep problems over the previous four weeks, and they do not imply clinical diagnoses, nor reflect sleep laboratory measures. Second, the cross-sectional survey design does not provide direct information about the course of sleep problems over time. Third, the types of malignancies have not been classified, although these may contribute to the mood and sleeping of the patients. Nonetheless, we can make some modest inferences on the study findings. For instance, it may be suggested that anxiety and sleeping difficulties may coexist with or without having causal relationships. Moreover, anxiety may also contribute to insomnia in patients. Therefore, it is likely that sleep problems may be better addressed as an independent variable and treated as such. It is clear that we need future longitudinal studies designed prospectively, incorporating comprehensive sleep assessment at set intervals, in order to determine the course of insomnia at different stages in the disease trajectory. Nevertheless, knowledge of the nature and prevalence of sleep problems between these two groups of patients can provide the basis for new approaches to supportive care, because many sleep problems can be effectively treated.

Acknowledgements

The authors have no conflict of interest to declare. They would like to thank to Tezay Kurçaloğlu, psychology student, who have essential contributions to the study in process of data collection.

References

1. Spechler SJ. Epidemiology and natural history of gastro-oesophageal reflux disease. *Digestion* 1992; 51(Suppl 1):24-9.
2. Petersen H. The prevalence of gastro-oesophageal reflux disease. *Scand J Gastroenterol* 1995;30:5-6.
3. Richter JE. Typical and atypical presentations of gastroesophageal reflux disease. The role of esophageal testing in diagnosis and management. *Gastroenterol Clin North Am* 1996;25:75-102.
4. Farup C, Kleinman L, Sloan S, et al. The impact of nocturnal symptoms associated with gastroesophageal reflux disease on health-related quality of life. *Arch Intern Med* 2001;161:45-52 .
5. Orr WC. Sleep and gastroesophageal reflux: what are the risks? *Am J Med* 2003; 115 (Suppl 3A):109S-113S.
6. Shaker R, Castell DO, Schoenfeld PS, Spechler SJ. Night-time heartburn is an under-appreciated clinical problem that impacts sleep and daytime function: the results of a Gallup survey conducted on behalf of the American Gastroenterological Association. *Am J Gastroenterol* 2003;98:1487-93.
7. Freidin N, Fisher MJ, Taylor W, et al. Sleep and nocturnal acid reflux in normal subjects and patients with reflux oesophagitis. *Gut* 1991;32:1275-9.
8. Chand N, Johnson DA, Tabangin M, Ware JC. Sleep dysfunction in patients with gastro-oesophageal reflux disease: Prevalence and response to GERD therapy - A pilot study. *Aliment Pharmacol Ther* 20(9):969-74.
9. Güz H, Sunter AT, Bektaş A, Doğanay Z. The frequency of the psychiatric symptoms in the patients with dyspepsia at a university hospital. *Gen Hosp Psychiatry* 2008;30:252-6.
10. Ginsburg ML, Quirt C, Ginsburg AD, MacKillop WJ. Psychiatric illness and psychosocial concerns of patients with newly diagnosed lung cancer. *Can Med Assoc J* 1995;152:701-8.
11. Davidson JR, MacLean AW, Brundage MD, Schulze K. Sleep disturbance in cancer patients. *Soc Sci Med* 2002;54:1309-21.
12. Kaye J, Kaye K, Madow L. Sleep patterns in patients with cancer and patients with cardiac disease. *J Psychol* 1983;114:107-13.
13. Prommer EE. Prevalence and characterization of the insomnia syndrome in an outpatient oncology clinic. *J Clin Oncology*, 2006 ASCO Annual Meeting Proceedings (Post-Meeting Edition). Vol 24, No 18S (June 20 Supplement), 2006:18612.

14. Roscoe JA, Kaufman ME, Matteson-Rusby SE, Palesh OG, Ryan JL, Kohli S, Peril ML, Morrow GR. Cancer-related fatigue and sleep disorders. *Oncologist* 2007;12:35-42.
15. Engstrom CA, Strohl RA, Rose L, Lewandowski L, Stefanek ME. Sleep alterations in cancer patients. *Cancer Nurs* 1999;22:143-8.
16. Kvale E. Principles for managing cancer-related sleep disturbances. *J Support Oncol* 2005;3:365-6.
17. Valente SM, Saunders JM. Diagnosis and treatment of major depression among people with cancer. *Cancer Nurs* 1997;20:168-77.
18. Bottomley A. Depression in cancer patients. A literature review. *Eur J Cancer Care* 1998;7:181-91.
19. Zigmond AS, Snaith PR. The hospital anxiety and depression scale. *Acta Psychiatr Scand* 1983;67:361-70.
20. Aydemir Ö, Güvenir T, Küey L, Kültür S. Hastane Anksiyete ve Depresyon Ölçeği Türkçe Geçerlilik ve Güvenilirliği. *Turkish Journal of Psychiatry (Turk Psikiyatri Derg)* 1977;8:280-7.
21. Buysse DJ, Reynolds CF, Monk TH, Berman SR, Kupfer DJ. The Pittsburgh sleep quality index: a new instrument for psychiatric practice and research. *Psychiatr Res* 1989; 28: 193-213.
22. Ağargün MY, Kara H, Anlar O. Validity and reliability of the Pittsburgh Sleep Quality Index in Turkish sample (Pittsburgh uyku kalitesi indeksinin geçerliği ve güvenilirliği). *Turkish Journal of Psychiatry (Turk Psikiyatri Derg)* 1996;7:107-15.
23. Wiklund I, Butler-Wheelhouse P. Psychological factors and their role in symptomatic gastroesophageal reflux disease and functional dyspepsia. *Scand J Gastroenterol* 1996;31:94-100.
24. Kamolz T, Velanovich V. Psychological and emotional aspects of gastroesophageal reflux disease. *Diseases of the Esophagus* 2002;15:199-203.
25. Atalay H. Co-morbidity of insomnia detected by the Pittsburgh Sleep Quality Index with anxiety, depression, and personality disorders. *Israel J Psychiatry Relat Sci* 2011;1:54-9.