

Do the patients with asthma or chronic obstructive pulmonary disease prefer internet or other sources to get information?

Astım ya da kronik obstrüktif akciğer hastalığı olan hastalar bilgi edinmek için interneti mi, diğer kaynakları mı tercih ediyorlar?

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ABSTRACT

Objective: To determine the frequency of internet use in patients with asthma or chronic obstructive pulmonary disease (COPD) to get information about their disease and to examine whether there are demographic differences between internet users and nonusers. Secondary aims were to delineate the information sources patients prefer and whether they consider their knowledge about their disease(s) as sufficient.

Materials and Methods: A questionnaire was sequentially administered to the patients who attended the Cumhuriyet University, Faculty of Medicine, Allergic Diseases and Chest Diseases Outpatient Clinics by face-to-face interviews between October 2004-February 2005. A total of 213 patients completed the questionnaire, among which 102 (47.9%) had asthma, 111 (52.1%) had COPD.

Results: Among the 213 patients, 4 (3.6%) patients with COPD and 31 (30.4%) patients with asthma had a computer at home, and 57 (55.9%) pati-

ÖZET

Giriş: Bu çalışmada, astım ya da kronik obstrüktif akciğer hastalığı (KOAH) olan hastaların, hastalıkları hakkında bilgi edinmek için interneti kullanma sıklıklarını saptamayı, internet kullanan ya da kullanmayanlar arasında demografik farklılıklar olup olmadığını belirlemeyi amaçladık. İkincil amaçlar, hastaların hangi bilgi kaynaklarını tercih ettiklerini ve hastalıkları hakkında yeterli bilgi sahibi olup olmadıklarını sorgulamaktır.

Gereç ve Yöntem: Ekim 2004-Şubat 2005 tarihleri arasında Cumhuriyet Üniversitesi Tıp Fakültesi, Göğüs Hastalıkları ve Allerjik Hastalıklar Polikliniklerine başvuran ardışık hastalara yüz yüze yöntemle anket uygulandı. Toplam 213 hasta anketi yanıtladı, hastaların 102 (%47.9)'si astımlı, 111 (%52.1)'i KOAH'lı idi.

Bulgular: Çalışmaya alınan 213 hastadan KOAH'lı 4 (%3.6) hastanın ve astımlı 31 (%30.4) hastanın evinde bilgisayar vardı ve astımlı 57 (%55.9) hastanın internet bağlantısı mevcuttu, KOAH'lı

ents with asthma and none of the patients with COPD had internet access. Among the 213 patients, 12 (11.8%) asthmatic patients and 1 (0.9%) patient with COPD had used the internet to get information about their own health. Doctors were the main sources of information about disease (182 patients, 81.0%).

Conclusion: It's necessary to draw attention of our patient's with COPD about the necessity of getting information about their diseases. It's necessary to draw attention of our patient's with asthma about using the internet for education about their diseases.

(*Asthma Allergy Immunol 2010;8:94-100*)

Key words: Internet, COPD, asthma

Received: 18/12/2009 • Accepted: 20/02/2010

INTRODUCTION

Asthma and chronic obstructive pulmonary disease (COPD) are common chronic diseases among adults in Turkey^[1,2]. Patient education has been shown to reduce morbidity in asthmatic patients^[3]. Unfortunately, formal asthma education programs are costly, time-consuming, and require significant expertise. However, the role of education in COPD has been poorly studied. Education is most effective when it is interactive and conducted in small workshops^[4]. The internet is a potentially powerful and important tool for patient education since there are many medical information sites. Despite the substantial amount of asthma-related information available on the internet, little is known about the quality of such information^[5-8]. However, a few reports have reflected the number, variety and effectiveness of implemented patient with COPD education programs^[9,10].

The internet has some peculiar problems as well. Firstly, access to the internet is not widespread in underdeveloped countries. Access may be limited due to the lack of computer availability or individual computer skills. Also, it may be related to the educational and income levels as well as the user age^[11]. Secondly, it is difficult for patients to examine the quality of information and to evaluate medical information on the World Wide Web.

hastaların hiçbirinin internet erişimi yoktu. İki yüz on üç hastadan 12 (%11.8) astımlı ve 1 (%0.9) KOAH'lı hasta hastalıkları hakkında bilgi edinmek için interneti kullanmışlardı. Hastaların hastalıkları hakkında bilgi edinmek için en sık başvurdukları kaynak doktorlarıydı (182 hasta, %81.0).

Sonuç: KOAH'lı hastalarımızın hastalıkları hakkında bilgi edinmeleri gerektiği konusunda dikkatlerinin çekilmesi gerekmektedir. Astımlı hastaların da hastalıkları hakkında eğitim almak için interneti kullanmaları konusunda dikkatlerini çekmek gerekmektedir.

(*Asthma Allergy Immunol 2010;8:94-100*)

Anahtar kelimeler: İnternet, KOAH, astım

Geliş Tarihi: 18/12/2009 • Kabul Ediliş Tarihi: 20/02/2010

According to Turkish Statistical Institute data (www.turkstat.gov.tr), in Turkey, the importance of the internet was only recently comprehended and it has become widespread since then. The number of the internet users was 1.785.000 in 2000, but now it is estimated to be around 14 million people. As of 2005, approximately 13.9% Turkish adults (18.6% urban, 6.05% rural area) have the internet access. Approximately 22.4% of the internet users search for health-related information on the World Wide Web on a regular basis in Turkey^[12].

There are no studies to our knowledge comparing the use of internet versus other conventional resources by patients with asthma or COPD.

In this study, we aimed to determine the views and preferences of the patients with COPD or asthma about patient education, and to determine the frequency of internet use by the patients to obtain information about their own diseases. Moreover, we aimed to determine whether demographic differences existed between the internet users and nonusers and to delineate the sources of information used by the patients. We also aimed to examine whether they considered their knowledge about their disease as sufficient or not.

MATERIALS and METHODS

Study Population

A face-to-face interview questionnaire was administered to the consecutive patients with COPD who attended chest diseases and to the patients with asthma who attended allergic diseases or outpatient clinics between October 2004-February 2005. All subjects agreed to answer the questionnaire. Before this study, we didn't recommend any web sites to the patients for patient education.

Asthma diagnosis was based on a history of recurrent symptoms of wheezing, shortness of breath, cough and demonstration of objective signs of reversible airway obstruction by means of at least 12% increase in FEV₁ after 15 minutes with an inhalation of 200 µg salbutamol or a PC20 methacholine < 8 mg/mL as stated by the Global Initiative for Asthma (GINA)^[13]. Selection of COPD patients was based on the definition and classification provided by the Global Initiative for Chronic Obstructive Lung Disease (GOLD)^[14].

Questionnaire

The survey questioned demographic details, sources of information, whether the patient had a computer in the house, and whether the internet is used for information or not. It was applied by face-to-face interview by a doctor.

Statistical Analyses

Statistical analyses were performed using the Statistical Package for the Social Sciences version 10.0 for Windows (SPSS Inc, Chicago, IL, USA). Results of the study are presented as the mean ± SEM. Univariate analysis is used for estimating differences and 95% confidence intervals (95% CI) between comparison groups is admitted. Categorical variables were analyzed with the Pearson chi-squared test. Simple differences between groups in continuous data were tested with Student's t test. In all instances, a probability value less than 0.05 was considered as statistically significant.

Ethics Approval

The study was approved by the Cumhuriyet University, Faculty of Medicine Ethics Committee.

RESULTS

Among the 213 patients who answered the questionnaire, 102 (47.9%) had asthma and 111 (52.1%) had COPD. Mean age was 35.5 ± 1.2 years and 64.7 ± 0.9 years in patients with asthma and COPD respectively (p< 0.05). Females constituted 71.6% and 31.5% of the patients with asthma and COPD, respectively (p< 0.05). Demographic characteristics of the patients are shown in Table 1. None of the patients received home telemonitoring.

Among the 213 patients, frequency of having a computer was 30.4% (31) and 3.6% (4) in patients with asthma and COPD respectively (p= 0.00). The number of patients who had used the internet were 57 (55.9%) and 0 (0%) in patients with asthma and COPD, respectively, 13 (6.1%) of the patients had used the internet for health information.

We found that the two groups significantly differed in educational level and annual income. Both university education and higher annual income were found to lead to higher internet use rate and the internet users were younger on average (31.8 ± 1.6 years vs. 57.6 ± 1.2 years), and this difference was statistically significant. Most internet users were female (68.4% vs. 44.2%; p= 0.00). Similarly, most internet users have had less than five years of symptom duration (50.9% vs. 33.3%) and this difference may be explained by the age and educational level of patients (29.0 ± 2.3 years vs. 55.2 ± 2.5 years and 65.5% vs. 3.8%, respectively). The demographic characteristics of patients according to internet use in general and internet use for health information are shown in Table 2.

The patients listed different sources of information upon the question "Where have you received information about your disease?". Physician was the most common source of information (175, 82.2%; 80.4% and 83.8% of patients

Table 1. Patient demographics and characteristics

Variables	Asthma (n= 102)		COPD (n= 111)		p
	n	%	n	%	
Age (years) (mean ± SEM)	35.5 ± 1.2		64.7 ± 0.9		0.00
Gender (F) (%)	71.6		31.5		0.00
Annual income \$					
< 6000	10	9.8	28	25.2	0.00
6000-13.000	50	49	69	62.2	
> 13.000	42	41.2	14	12.6	
Education					
Illiterate	7	6.9	45	40.5	0.00
Literate	7	6.9	14	12.6	
Elementary school	36	35.2	47	42.3	
High school	15	14.7	4	3.6	
University	37	36.3	1	0.9	
Duration of symptoms					
< 5 years	48	47.1	33	29.7	0.02
5-10 years	29	28.4	33	29.7	
> 10 years	25	24.5	45	40.5	

Table 2. Demographic characteristics of the internet users and the internet users for health information

	Internet users (n= 57)	Internet non-users (n= 156)	p	Internet users for health information (n= 13)	Internet non-users for health information (n= 200)	p
Age (years)	31.8 ± 1.6	57.6 ± 1.2	0.00	29.6 ± 2.6	52.1 ± 1.3	0.00
Gender (F) (n, %)	39 (68.4)	69 (44.2)	0.02	11 (84.6)	97 (48.5)	0.02
Self-reported income levels (annual income \$) (n, %)						
< 6000	5 (8.8)	33 (21.2)	0.00	0 (0)	38 (19.0)	0.18
6000-13.000	24 (42.1)	95 (60.9)		8 (61.5)	111 (55.5)	
> 13.000	28 (49.1)	28 (17.8)		5 (38.5)	51 (25.5)	
Self-reported education levels (n, %)						
Illiterate	3 (5.3)	49 (31.4)	0.00	1 (7.7)	51 (25.5)	0.00
Literate	1 (1.8)	20 (12.8)		0 (0)	21 (10.5)	
Elementary school	13 (22.8)	70 (44.9)		2 (15.4)	81 (40.5)	
High school	8 (14.0)	11 (7.1)		4 (30.8)	15 (7.5)	
University	32 (56.1)	6 (3.8)		6 (46.2)	32 (16.0)	
Duration of symptoms (n, %)						
< 5 years	29 (50.9)	52 (33.3)	0.04	5 (38.5)	76 (38.0)	0.26
5-10 years	16 (28.1)	46 (29.5)		6 (46.2)	56 (28.0)	
> 10 years	12 (21.1)	58 (37.2)		2 (15.4)	68 (34.0)	

Table 3. Suggestions of patients about patient education methods

	Asthma (n= 102)		COPD (n= 111)		p
	n	%	n	%	
Have no idea	3	2.9	45	40.5	0.00
Patient education meeting	59	57.8	19	17.1	
Face-to-face by the doctor	20	19.6	40	36.0	
Other methods (i.e. tv, brochures, newspaper etc.)	16	15.7	5	4.5	
Internet	4	3.9	0	0	

with asthma and COPD, respectively). The 61.6% of asthmatics and 68.5% of patients with COPD listed only one source of information in reply to this question. Other sources of information were family and friends (5.2%), television (15.5%), newspaper (3.3%), medical journals (8.5%), nurses (12.7%) and pharmacist (0.9%).

Most of the patients (48%) who answered the question about preferred source of information as physician reported that they trusted the information from physician.

Among all, 53 (52.5%) asthmatic patients and 54 (48.6%) of patients with COPD have regarded themselves as well informed about their diseases when asked to evaluate the quality of overall information. There was no significant difference between two groups. When we compared the groups who had used the internet for health information this rate was 53.8% (n= 7).

When asked "Do you want to join a patient education meeting?", most of the patients with asthma and COPD (87.3% and 81.1%, respectively) were eager to participate in a patient education meeting.

When we asked the patients their suggestions about patient education method, 17.1% of patients with COPD and 47.8% of the ones with asthma suggested patient education meetings (p< 0.05). Table 3 shows suggestions of patients about patient education methods.

DISCUSSION

To our knowledge, this is the first study comparing the frequency of internet use in pa-

tients with asthma and COPD to obtain information about their own health and presenting the views and preferences of the patients with asthma or COPD on patient education. We are only beginning to understand how patients will use the internet to supplement traditional sources of information in Turkey.

We undertook this study to address several questions about patient's utilization of the internet for self education and the views and preferences of the patients on education. The current study demonstrated that among patients asthma or COPD (1) asthmatics use the internet for their own health information but none of the patients with COPD does, (2) younger and well educated patients and female patients utilize the Internet more often, (3) most of the patients with COPD have no idea about patient education about their disease, (4) asthmatics have suggested patient education meetings, and patients with COPD have preferred media (tv, magazines etc.).

It has been estimated that between 30% and 50% of the internet users search for health-related information on the World Wide Web on a regular basis^[5]. Using general survey data, use of the computer and internet by adults were 23.16% and 13.9% (4.3% female) in 2005, respectively, and 22.4% of the internet users were reported to use the internet for health-related information in Turkey^[12]. In our study, overall, 26.8% of patients (55.9% of asthmatic patients) reported using the internet but only 6.1% of patients (17.5% of the internet users) reported

using it for health-related information. The percentage of the internet users is higher than the general survey data in Turkey. However, 11.8% of asthmatic patients and 0.9% of patients with COPD were using the internet for health-related information. This difference may be explained by the younger age and higher education of patients with asthma. Finkelstein et al. reported their internet-based monitoring and education delivered to the homes of patients with asthma, in low-income and inner city locations, and 71% of the patients had never used a computer^[15]. Our findings are consistent with the results of Finkelstein et al. In contrast to the study by Ross et al., female patients were more likely to use the internet in our population^[16]. This may be explained by the difference of patient group in this study. Although there are some data about percentage of patients with gastroenterology clinic population, genitourinary medicine clinics, lung cancer and asthma, we couldn't find any study addressing the view of internet-based education for patients with COPD so we couldn't compare our results with other studies^[5,11,16,17]. In the study by Nguyen et al., the findings suggested that additional investigations of internet-based interventions to promote self management in patients with COPD are warranted^[10].

Another important issue is the limits of currently available patient information about asthma and COPD on the internet, and communication barriers on the World Wide Web. Croft et al. revealed that asthma information sites are extremely variable in quality and content and that most of these sites failed to meet the information needs of patients^[5]. When the content is accurate, it may not be communicated well to the patient using the site. Unfortunately, there were no study conducted to assess the quality and contents of asthma and COPD education on the internet reviewed websites in Turkey.

In our study, the patients identified the most common source of information as physician (82.2%). This result is similar to the 82% of patients with lung cancer previously reported

in the findings of Peterson et al.^[17]. In addition, our patients with COPD preferred face-to-face education by a physician. Our data confirm clinicians' impression that COPD patient education is beneficial in improving patient self-management. We couldn't find any study about the preferences of COPD patients in patient education, so we couldn't compare this result with literature.

The limitations of this study should be highlighted as well. Perhaps the most relevant limitation is that the patients enrolled in this study are living in Sivas. Sivas is a small city of Turkey so the number of patients who have a computer and the internet access might be less than the number of patients with COPD in big cities. Because of the nature of this study, there was no comparison with this group. However, in our study, we showed that the percentage of the internet users in asthmatic group were higher than the general survey data in Turkey. Therefore, it may eliminate the bias.

In conclusion, formal asthma and COPD education programs are costly, time-consuming and require significant expertise. The internet can be very cost effective. It appears that the internet interactive multimedia programs for home and office education hold significant promise for the future and should be pursued for asthmatic patients. However, patient education meetings are also effective educational tools in our country.

At the end of this study, we recommend our internet user patients Turkish Thoracic Society and Turkish National Society of Allergy and Clinical Immunology web sites as sites to obtain information about their diseases.

It's necessary to draw attention of our patient's with asthma to use the internet for self-education in their diseases. It's necessary to draw attention of our patient's with COPD about the necessity of getting information about their diseases. The patient education by physician seems to be a suitable choice for this purpose.

REFERENCES

1. Dinmezel S, Oğus C, Erengin H, Cilli A, Ozbudak O, Özdemir T. The prevalence of asthma, allergic rhinitis, and atopy in Antalya, Turkey. *Allergy Asthma Proc* 2005;26:403-9.
2. Ekici A, Ekici M, Kurtipek E, Akin A, Arslan M, Kara T, et al. Obstructive airway diseases in women exposed to biomass smoke. *Environ Res* 2005;99:93-8.
3. NHLBI/WHO Workshop Report. *Global Initiative for Asthma. (Updated 2005):* 82-92.
4. NHLBI/WHO Workshop Report. *Global Initiative for Chronic Obstructive Lung Disease (Updated 2005):* 65-87.
5. Croft DR, Peterson MW. An evaluation of the quality and contents of asthma education on the World Wide Web. *Chest* 2002;121:1301-7.
6. Oermann MH, Gerich J, Ostosh L, Zaleski S. Evaluation of asthma websites for patient and parent education. *J Pediatr Nurse* 2003;18:389-96.
7. Bernstein JA. Interfacing computers and the internet with your allergy practice. *Clin Rev Allergy Immunol* 2004;27:115-21.
8. Patel AM. Using the internet in management of asthma. *Curr Opin Pulm Med* 2001;7:39-42.
9. Park HW, Min KU, Kim YY, Cho SH. Assessing the quality and contents of asthma-related information on the Korean internet as an educational material for patients. *J Korean Med Sci* 2004;19:364-8.
10. Nguyen HQ, Carrieri-Kohlman V, Rankin SH, Slaughter R, Stulbarg MS. Is internet-based support for dyspnea self-management in patients with chronic obstructive pulmonary disease possible? Results of a pilot study (Abs). *Heart Lung* 2005;34:51-62.
11. O'Connor JB, Johanson JF. Use of the web for medical information by a gastroenterology clinic population. *JAMA* 2000;284:1962-4.
12. Republic of Turkey, Prime Ministry Turkish Statistical Institute (TURKSTAT) News Bulletin; 179: November 2005. Available at: http://www.tuik.gov.tr/PreHaberBultenleri.do?id=1&tb_id=11
13. NHLBI/WHO Workshop Report. *Global Initiative for Asthma. (Updated 2005):*68-79.
14. NHLBI/WHO Workshop Report. *Global Initiative for Chronic Obstructive Lung Disease (Updated 2005):* 6-10.
15. Finkelstein J, Cabrera MR. Internet-based home asthma telemonitoring. Can patients handle the technology. *Chest* 2000;117:148-55.
16. Ross J, Chapman C, Murray C, Stevenson M, Natin D, Rogstad K. How much interest is the internet to patients? *Sex Transm Infect* 2000;76:393-4.
17. Peterson MW, Fretz PC. Patient use of the internet for information in a lung cancer clinic. *Chest* 2003;123: 452-7.