



Original Research / Özgün Araştırma

Physicians' antibiotic prescription behaviors in patients with sore throat: a comparison of family physicians and ENT doctors

Boğaz ağrılı hastalarda hekimlerin antibiyotik yazma davranışları: Aile hekimleriyle KBB hekimlerinin karşılaştırılması

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ABSTRACT

Objective: The aim of the study was to investigate the antibiotic prescription behaviors of the physicians and their perceptions of antibiotic expectations of the patients presenting to ear-nose-throat specialists, and family physicians with the primary complaint of sore throat and related factors. **Methods:** A prospective descriptive study was conducted at Adnan Menderes University Hospital, Outpatient Clinics of Otorhinolaryngology, together with family physicians practicing in affiliation with Family Medicine Outpatient Clinics, between February 2014 and February 2015. The study population consisted of 384 patients with the main complaint of sore throat and 26 physicians. Patient and physician questionnaires were applied to the participants. For statistical evaluation, t-test, Chi-square test and multiple logistic regression analysis were used. **Results:** Ten percent of the patients with sore throat had an expectation of antibiotic. The physicians perceived an expectation for antibiotics in 48.4% of the patients and 53.4% of them prescribed antibiotics to their patients. The patients' expectations for antibiotics were not effective on physicians' perceptions of patients' antibiotic expectations or their antibiotic prescription behavior. The less experienced physicians (10.6 fold), family physicians (7.0 fold) and physicians who perceived expectation of their patients for antibiotics (5.8 fold) prescribed more antibiotics; patients living in urban areas were prescribed more antibiotics (3.2 fold). **Conclusion:** Antibiotic expectation of the patients with a sore throat is very low. Being a family physician, physician's perception of patient's antibiotic expectation, lack of professional experience, and living in urban area are the factors effective on physician's antibiotic prescribing behavior.

Key words: patients' antibiotic expectations; prescribing behavior; family physician; ENT specialist

ÖZET

Amaç: Bu çalışmanın amacı, kulak-burun-boğaz uzmanları ve aile hekimlerinin, boğaz ağrısı yakınmasıyla kendilerine başvuran hastalarda antibiyotik beklentisi algıları ve antibiyotik yazma davranışlarıyla bunlarla ilişkili etkenleri araştırmaktır. **Yöntem:** Şubat 2014 ve Şubat 2015 tarihleri arasında Adnan Menderes Üniversitesi Hastanesi Kulak Burun Boğaz Hastalıkları polikliniğinde ve Aile Hekimliği polikliniği ile afileye çalışan aile hekimleriyle ileriye dönük tanımlayıcı bir çalışma yapıldı. Başlıca yakınması boğaz ağrısı olan 384 hasta ve 26 hekim çalışma nüfusunu oluşturdu. Katılımcılara hasta ve hekim anketleri uygulandı. İstatistiksel değerlendirme için t testi, Ki-kare testi ve çoklu lojistik regresyon analizi kullanıldı. **Bulgular:** Boğaz ağrısı olan hastaların %10'unda antibiyotik beklentisi vardı. Hekimler hastaların %48,4'ünde antibiyotik beklentisi algıladı ve %53,4'ü hastalarına antibiyotik yazdı. Hastalardaki antibiyotik beklentisi, hekimlerin hastalardaki antibiyotik beklentilerine ilişkin algısı ve antibiyotik yazma davranışı üzerinde etkili değildi. Daha az deneyimli hekimler (10,6 kat), aile hekimleri (7,0 kat) ve hastalarında antibiyotik beklentisi algılayan hekimler (5,8 kat) daha çok antibiyotik yazmıştı; kentsel bölgelerde yaşayan hastalara daha çok antibiyotik yazılmıştı (3,2 kat). **Sonuç:** Boğaz ağrılı hastaların antibiyotik beklentileri oldukça düşüktür. Aile hekimi olma, hekimin hastasında antibiyotik beklentisi algılaması, mesleki deneyim eksikliği ve kentsel bölgede yaşama, hekimlerin antibiyotik yazma davranışı üzerinde etkili faktörlerdir.

Anahtar kelimeler: Hastaların antibiyotik beklentisi; reçete etme davranışı; aile hekimi; KBB uzmanı

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INTRODUCTION

Sore throat is one of the most common reasons for encounter in primary care. It is generally self-limiting and raises concern about an increase in workload, costs, and antibiotic-resistant bacteria.^{1, 2} Studies have shown that the antibiotic prescription rates of the countries are closely related to the resistance rates and as the rates of inappropriate antibiotic prescription decrease, the resistance rates decrease, as well.³⁻⁵

Making a decision to prescribe antibiotics in patients with sore throat is a troublesome situation for family physicians and ENT doctors. Although it has long been known that it does not change the course of the disease, antibiotics are frequently prescribed for these patients.⁶ The prescription rate particularly increases when the patients are in drug expectation.^{2, 7-10} It has been determined that when the expectations and concerns of the patients are questioned in detail and then evaluated, higher levels of patient satisfaction would be achieved.¹¹

It has long been known that the prescription rate of physicians increases when they perceive drug expectation of their patients.⁷ There are many studies investigating the factors that affect the prescription behaviors of family physicians; they have suggested that the perception of physicians in terms of patient expectations are the most powerful determinant for writing prescription.^{7,9,10} Physicians over-perceive the antibiotic expectations of their patients and when they perceive the antibiotic expectation, they prescribe more antibiotics for various reasons.^{2, 7, 9,12}

Studies related to drug and antibiotic use for sore throat and upper respiratory system infections have mostly been conducted at the primary care level and by family physicians. No study is available regarding ENT doctors, which is another group of physicians frequently encountering such clinical conditions. Although the interest has been focused more on the primary care level in terms of the increases observed in antibiotic-resistant bacteria and costs, the contribution of ENT doctors to the problem and comparison with the family physicians may be significant.

Antibiotics are the most commonly used drugs in our country.¹³ However, the irrational use of antibiotics occurs with a rate of 40-60%.^{14, 15} According to the results of various studies, the antibiotic prescription rate of primary care physicians in upper respiratory tract infections ranges between 74-95%.¹⁶⁻¹⁸ However, in our

country, studies investigating the factors affecting antibiotic prescription behaviors of physicians are limited and no study on the effects of patient expectations and physicians' perceptions for patients' antibiotic expectations on the antibiotic prescription of behaviors has been found.¹⁹⁻²¹ The opinions and behaviors of family physicians might be affected by various groups, socially and culturally.²²⁻²⁴ Therefore, in order to establish appropriate initiatives in terms of reducing inappropriate antibiotic use, determining the underlying factors for physician behaviors might be helpful.

The aim of the study was to investigate the antibiotic prescription behaviors of ENT doctors, and family physicians and their perceptions of antibiotic expectations of the patients with the main complaint of sore throat.

METHODS

This study was designed as a prospective survey and took place between February 2014 and February 2015 in Aydın, Turkey. The main outcome measures of the study were whether the practitioner physicians prescribed antibiotics for patients with sore throat and whether they perceived that the patients expected an antibiotic. The study covered a target population of ENT doctors working in the Outpatient Clinics of Otorhinolaryngology at Adnan Menderes University Hospital, together with family physicians practicing in primary care family health centers in affiliation with the Family Medicine Department at the University. Eligible patients presenting with a sore throat to each consenting physician was asked to participate in the study. Patients older than 18 years of age, able to read and write Turkish, and not too ill to complete questionnaires were included in the study. Patients having causes of sore throat other than infection, who was seriously ill, who had the suspicion of rheumatic fever, who had more than five episodes of tonsillitis per year, who had serious local complications, and who were pregnant, were excluded from the study.

Consenting patients were asked to complete a questionnaire before the consultation, with face-to-face interviews. A questionnaire was given to the participating physicians for each patient in order to fill out at the end of the consultation. The verbal consents of physicians and patients, who participated in the study, were obtained.

Two questionnaires were used in the study. Most of the questions were adapted from the questionnaires of the other studies in the literature.

The questionnaire for patients involved questions querying their sociodemographic data and general expectations. The patients were also asked for a description of their symptoms, any prior self-treatment, their expectations for a prescription of any medications or antibiotics, whether they thought they would benefit from an antibiotic, their views about whether antibiotics were necessary, and their satisfaction with the consultation.

The questionnaire, prepared for physicians, included questions inquiring physicians' perceptions of their patients' antibiotic expectations during the consultation together with their antibiotic prescription status and related variables, in addition to their demographic and occupational characteristics.

Within the study period, 480 patient interviews were performed by 26 physicians, six of whom were ENT physicians (4 trainees, 2 faculty members) and 20 of whom were family physicians. There were 384 physician surveys, which were filled and returned by physicians, and were matched with the patient surveys (240 from ENT Outpatient Clinics and 144 from Family Medicine Outpatient Clinics). Ninety-six survey sheets were found as inadequate or inappropriate and were not taken into consideration.

Permissions for the study were received from Adnan Menderes University, School of Medicine, the Ethics Committee for Non-interventional Clinical Research, and the local health authorities.

The analysis was conducted using the statistical software package, SPSS (SPSS Turkey, SPSS Software, Training & Consultancy Trade Limited Company, Istanbul). For statistical evaluation, in addition to descriptive statistics, t-test was used for continuous variables and Chi-square and Fisher's exact tests were used for

categorical variables for determination of the relationship between each independent variable and the main outputs. To determine the relations between the variables having significance in univariate tests, multiple logistic regression tests were used; Odds ratios and 95% confidence intervals were given for the final model. $P < 0.05$ was considered as the significance level.

FINDINGS

Twenty-six physicians (six ENT doctors and 20 family physicians) participated in the study, with 384 patients (240 patients from ENT Outpatient Clinics and 144 patients from family health centers). On average, 40 survey forms returned from ENT physicians and 7.2 survey forms from family physicians.

Patient characteristics

The average age of patients was 39.2 ± 14.9 years (range 2-89 years), 62.5% (n = 240) were female, 27.3% (n = 105) were housewife, 54.9% (n = 211) were educated for 9 years and over, and 89.3% (n = 343) were settled in urban areas. Patients presented to the ENT doctors and family physicians were similar in terms of age and gender ($p > 0.05$).

Patient Expectations

Of patients included in the study, 302 (78.6%) expected a prescription of any drug and 38 (9.9%) a prescription of an antibiotic. Two hundred seventeen patients (56.5%) thought that they would benefit from an antibiotic for their current illness, while 53 patients (13.8%) explicitly requested an antibiotic from their physicians. The opinions and expectations of patients presenting to family physicians and ear-nose-throat physicians in terms of prescription of drugs and antibiotics have comparatively been given in Table 1.

Table 1. The opinions and expectations of patients presenting to family physicians and ear-nose-throat physicians				
Opinions and expectations of patients	ENT* physicians	Family physicians	Total	Statistics[†]
	n (%)	n (%)	n (%)	
The patient has an expectation for prescription of a drug	159/240 (66.3%)	143/144 (99.3%)	302/384 (78.6%)	$\chi^2=58.556$ ($p < 0.001$)
The patient has an expectation for prescription of an antibiotic	11/240 (4.6%)	27/144 (18.8%)	38/384 (9.9%)	$\chi^2=20.257$ ($p < 0.001$)
The patient considered that antibiotic would be beneficial	93/240 (38.8%)	124/144 (86.1%)	217/384 (56.5%)	$\chi^2=82.143$ ($p < 0.001$)
The patient explicitly requested antibiotic prescription	25/240 (10.4%)	28/144 (19.4%)	53/384 (13.8%)	$\chi^2=10.543$ ($p < 0.001$)

* ENT: ear-nose-throat, [†] Chi-squared test

Physician characteristics

The mean age of physicians was 37.1 ± 8.7 and 14 (53.8%) physicians were male. Taking all patient interviews into consideration, the professional experience of family physicians (80.6%, 6 years and over) was higher ($\chi^2 = 205.237$, $p < 0.001$) when compared to ENT physicians (8.3%, 6 years and over).

Perceptions of antibiotic expectation and antibiotic prescription behaviors of the physicians

The participating physicians perceived an expectation of antibiotics for 186 patients (48.4%)

and 205 patients (53.4%) were prescribed antibiotics by their physicians. Among physicians who prescribed antibiotics, 86% (177/205) of them were sure about prescribing antibiotics and 44.9% (92/205) stated that expectations of their patients had no impact on their decisions of prescribing antibiotics. The comparative data of two physician groups for variables related to physicians' perceptions for patients' antibiotic expectations and the antibiotic prescription rates have been shown in Table 2. The patients' expectations for antibiotics were not effective on physicians' perceptions of patients' antibiotic expectations or their antibiotic prescription rates ($p > 0.05$).

Table 2. The comparative data of variables related to physicians' perceptions for patients' antibiotic expectations and antibiotic prescription rates between two physician groups

Variables	ENT* physicians	Family physicians	Total	Statistics [†]
	n (%)	n (%)	n (%)	
Perceived the antibiotic expectation of the patient	85/240 (35.4%)	101/144 (70.1%)	186/384 (48.4%)	$\chi^2=43.445$ ($p<0.001$)
Prescribed antibiotics	91/240 (37.9%)	114/144 (79.2%)	205/384 (53.4%)	$\chi^2=61.538$ ($p<0.001$)
Sure about the antibiotic prescription	86/91 (94.5%)	91/114 (79.8%)	177/205 (86.3%)	$\chi^2=8.046$ ($p=0.005$)
Considered that patient's expectation was effective on antibiotic prescription	56/91 (61.5%)	57/114 (50.0%)	113/205 (55.1%)	($p>0.05$)

* ENT: ear-nose-throat, [†] Chi-squared test

Factors affecting antibiotic prescribing behaviors of the physicians

The relationships of the dependent variable (physician's antibiotic prescription) with the independent variables were evaluated by univariate analysis.

The antibiotic prescription rates of the participating physicians were higher for patients with the educational level of nine years and over (62.1%), when compared to patients with an educational period less than nine years (42.8%) ($p < 0.001$); for patients living in urban areas (56.9%) than patients living in rural areas (24.5%) ($p < 0.001$); for patients expecting to be prescribed (57.0%) when compared to patients who did not have any expectation of prescription (40.2%) ($p = 0.007$); for patients who felt that antibiotics would be beneficial (64.1%) when compared to patients who did not have such an opinion (39.5%) ($p < 0.001$). The antibiotic prescription rates were higher for physicians who perceived antibiotic expectation of their patients (75.8%) than those who did not have such a perception (32.3%)

($p < 0.001$); for physicians having professional experience six years and over (69.9%) than those with professional experience less than six years (44.5%) ($p < 0.001$), for family physicians (79.2%) when compared to ENT doctors (38.0%) ($p < 0.001$). The physicians who prescribed antibiotics (34.3 ± 7.3) were older than the physicians who did not prescribe any antibiotics (31.0 ± 4.7) ($p < 0.001$).

Multiple logistic regression analysis was performed to determine the degree of influence of independent variables on antibiotic prescription rates of the physicians. Accordingly, physicians with less than six years of experience prescribed antibiotics 10.6 times more, with family physicians 7.0 times more, and physicians who perceived the expectation of their patients for antibiotics 5.8 times more. Patients living in urban areas were prescribed antibiotics 3.2 times more.

The results of multiple logistic regression analysis involving the factors that influence the antibiotic prescription rates of physicians have been shown in Table 3.

Table 3. The results of multiple logistic regression model for factors that influenced the antibiotic prescription status of the physicians

Dependent variable: Physician's antibiotic prescription						
Independent variables in the model		Beta	Standard error	p	Odds ratio[†]	95% confidence interval
Type of settlement	Urban	1.162	.435	.008	3.196	1.330 -2.589
	Rural				1 (reference)	
Professional experience of the physician	Having experience less than six years	-2.361	.666	.000	10.638	2.873 -38.461
	Having experience of six years and over				1 (reference)	
Perception of antibiotic expectation	Yes	1.765	.256	.000	5.839	3.533 -9.651
	No				1 (reference)	
Physician to whom the patient presented	Family physician	1.948	.427	.000	7.014	3.040 -16.186
	ENT* physician				1 (reference)	
Constant		-6.123	1.381	.000	.002	

* ENT: ear-nose-throat, † Multiple logistic regression test

Factors affecting the perception of the patient's antibiotic expectation by the physician

The independent variables, which were effective on the physician's perception of patient's antibiotic expectation was evaluated by univariate analysis. Accordingly, physicians perceived increased antibiotic expectation of patients who were educated for nine years and over (59.7%, p=0.000), who had an expectation of prescription of any medication (52.6%, p=0.002), who had an opinion that antibiotic would be beneficial (63.1%, p=0.000), who considered that their illness was less serious (64.6%, p=0.001), and in younger patients (p=0.033). Family physicians (70.1%, p=0.000), physicians with professional experience of six years and over (64.7%, p=0.000), female physicians (60.8%, p=0.014), physicians with older ages (p=0.002) and physicians who considered

their clinical knowledge and patient management skills to be partially sufficient (59.2%, p=0.036) perceived increased antibiotic expectation of their patients.

To determine the degree of influence of independent variables' on physicians' perceptions of their patients' antibiotic expectations, multivariate logistic regression analysis was performed. Accordingly, family physicians perceived antibiotic expectations 3.6 times more. Moreover, physicians perceived antibiotic expectation 2.7 times more in patients who felt that antibiotics would be beneficial and 2.1 times more in patients whose educational level was nine years and over. The results of multivariate logistic regression analysis involving factors that influence physician's perception of patient's antibiotic expectations have been shown in Table 4.

Table 4. The results of multivariate logistic regression analysis for factors that influence physician's perception status of patient's antibiotic expectation

Dependent variable: Physician's perception of patient's antibiotic expectation						
Independent variables in the model		Beta	Standard error	p	Odds ratio[†]	95% confidence interval
The physician to whom the patient presented	Family physicians	1.270	.323	.000	3.561	1.891 -6.706
	ENT* physicians				1 (reference)	
The patient's feeling that antibiotic would be beneficial	Yes	0.985	.249	.000	2.678	1.644 -4.362
	No				1 (reference)	
The educational level of the patient	Educated for 9 years and over	0.753	0.231	0.001	2.123	1.349 - 3.340
	Educated for less than 9 years				1 (reference)	
Constant		-0.080	.699	.909	.924	

* ENT: ear-nose-throat, † Multiple logistic regression test

DISCUSSION

This study supports the results of previous studies, which have investigated the effects of physicians' perceptions of patients' expectations on their prescribing behavior. No study related to the expectations of patients with sore throat and their effects on the physicians' practices have been conducted in our country. The major results of this study, in which two physician groups practicing according to different job descriptions in different settings have been compared, is the patients' greater drug and antibiotic expectation from family physicians and family physicians' greater perception of their patients' antibiotic expectations when compared to ENT physicians. Family physicians and physicians who perceive their patients' antibiotic expectations prescribe antibiotics more frequently.

It is well known that inappropriate antibiotic use is the most important cause of increased resistance against antibiotics.²⁵ There are many reasons for the desire of patients to use antibiotics. The patients may express their desires directly or indirectly to their physicians. It is known that these requests are effective in physicians' antibiotic prescribing behaviors.²⁶ Initiatives to change this complex behavior necessitate an understanding of patients' and physicians' perceptions. Our study is the first study conducted with ENT physicians on this subject.

Patient expectations for antibiotic

In our study, the drug and antibiotic expectations of patients have shown various features. The proportion of patients with drug expectations from their physicians is quite high (79%). However, although more than half of the patients have felt that antibiotics would be beneficial for their current illness, the number of patients with the antibiotic expectations from their physicians is very low (10%). On the other hand, more than the patients having antibiotic expectations before the consultation directly requested antibiotics from their physicians during the consultation. It appears that, before the consultation, patients are likely to concentrate their expectations on any drug, and although they feel that antibiotics may be beneficial, they do not specify their expectations for antibiotics.

While almost all patients are in expectation for any drug from their family physicians, the proportion of patients expecting drugs from ENT physicians is reduced to two-thirds. Patients, who present to family physicians, have more expectation for antibiotics, have more felt that antibiotics might be beneficial, or have more asked actually the doctor for an antibiotic than those presenting to ENT physicians. The roles of physicians within the

healthcare system might have been effective on these results. In our country, family physicians working in the primary care level of healthcare system are perceived by people as physicians who mostly write or repeat prescriptions. That the patients, because they see ENT physicians as experts in their field, have more confidence in ENT physicians and expect some intervention other than drugs from them might also have had effect on this. In a study that has compared family physicians with nurses who are authorized to prescribe antibiotics, the drug expectations of patients who present with complaints of sore throat or cough have been found to be similar in both groups.⁹

Physician's perception of antibiotic expectation in the patient and related factors

Among variables affecting physicians' antibiotic prescribing behaviors in cases of sore throat, the one that is most discussed and investigated is the physician's perception of the patient's antibiotic expectation. Despite the low expectations of the patients for antibiotic, the physicians' perception of patients' antibiotic expectations is high. Nearly half of the physicians who have participated in the study have perceived antibiotic expectations in their patients. Physicians' perception of their patients' antibiotic expectations is almost fivefold of the antibiotic expectation reported by the patients. It has long been known that physicians perceive antibiotic expectations more than their actual status.²⁷ However, the effects of patients' drug or antibiotic expectations on physicians' perceptions of their patients' antibiotic expectations show variations among studies. In the study conducted by Lado et al., no correlation has been found between patients' antibiotic expectations and physicians' perceptions of their patients' antibiotic expectations.²⁸ In a survey study by Weiss et al., on the other hand, family physicians have been found to perceive antibiotic expectation in patients who expected a prescription.⁹

According to our study results, family physicians (3.6 fold) perceive more antibiotic expectation in patients who feel that antibiotics would be beneficial (2.7 fold), and in more educated patients (2.1 fold). The patient's expectations for drug or an antibiotic prescription does not seem to be effective on the physician's perception of antibiotic expectation in his/her patient. However, it is possible that the patient, who feels that an antibiotic would be beneficial, would let the family physician perceive his/her feeling even indirectly, during the consultation. Even so, it is hard to tell that expectations of patients for drug or antibiotic prescription lead to family physicians' perception of their patients' antibiotic expectations and prescribing antibiotics, relatedly. The greater possibility is that the general expectancy for writing and repeating

prescriptions from the family physicians working at the primary care level of the healthcare system has led to the family physicians' perception that they are expected to write prescriptions. On the other hand, physicians might have been asserting patients' expectations for antibiotics to rationalize their own decisions.²

Physician's antibiotic prescribing behavior and related factors

The influence of both patient expectations and physicians' perceptions of patients' antibiotic expectations on physician's antibiotic prescribing behavior have formed the basis of our study. According to our results, the most effective variable on physician's antibiotic prescribing behavior seems to be the professional experience of the physician. Although univariate analysis determined the opposite, according to our regression model, physicians having less professional experience prescribes antibiotics 10 times more frequently. It is known that the problem-solving skills of the physicians evolve as the number of patients they see increases.²⁹ On the other hand, physicians who are new in the profession and are less experienced may have been building a security zone by prescribing antibiotics in serious cases of sore throat.

The effect of physicians' perception of patient's antibiotic expectation on the antibiotic prescribing behavior is also obvious; physicians who perceive antibiotic expectation prescribes antibiotics 5.8 times more. In this regard, our results are consistent with other research results that have found that doctors' perception of patient expectations has a major influence on the prescribing decision of them.^{2,7,28} Cockburn and Pit, in their study, have determined that drugs are prescribed three times more for patients having drug expectation and that those physicians who have perceived drug expectation of their patients prescribe drugs ten times more frequently.⁷

The effect of the physician's perception of the patient's antibiotic expectation on physician's antibiotic prescribing behavior is more obvious in family physicians. Family physicians perceive more antibiotic expectations of their patients and prescribe antibiotics more. In the regression analysis model also, when the effects of all other variables are eliminated, family physicians have been found to prescribe antibiotics seven times more, compared to ENT physicians.

Numerous reasons affecting the antibiotic prescribing behavior of physicians have been reported in the literature. In a qualitative study, some reasons for antibiotics being prescribed such as physicians' desire for sustaining good relationships

with their patients, possible patient benefit outweighing the theoretical community risk from resistant bacteria, workload, encouraging patients for their self-care, and not taking patient expectations into consideration, have been determined.² Failure to meet patients' expectations might be considered as a conflict area; in terms of protecting good relationship or willing to do something to help the patient, drugs might be prescribed.²² In addition to the differences in approaches of family physicians to patient satisfaction, the perception of risk for losing patients to other physicians, especially in groups that cultural and monetary impulses are particularly effective, has been suggested to be important.^{23,24} Previous negative experiences of family physicians, their lack of experience in the management of complex cases, their lack of knowledge on the management of sore throat and associated uncertainty are also effective.²²

However, patient satisfaction does not necessarily seem to be related to receiving antibiotics. It has long been known that patients want to be informed and feel confident, more than prescription of an antibiotic.²⁷ Asking for and talking about the expectations of the patient, even if they are not met, may improve the relationship.²² In another study, patients have not directly related their satisfactions to antibiotic prescriptions and most of them seek reassurance, further information, and pain relief.²

Limitations of the study

Because the number of trainees is limited at the university department, few ENT doctors have been participated in the study. This limitation should be taken into consideration while evaluating the results of the study.

CONCLUSION

This study, which has been conducted with participants of family physicians and ENT physicians, has revealed some specific results as well as known facts related to the antibiotic prescription behaviors of physicians. Although the drug expectation is quite high in patients having the complaint of sore throat, specification of this expectation to antibiotics remains relatively low. In this regard, the expectations of the patients from family physicians are higher when compared to ENT physicians.

More than half of the physicians perceive the antibiotic expectation of their patients. Although the family physicians' perceptions of their patients' antibiotic expectations are more frequent, the expectations of patients for drug or antibiotic prescriptions are not effective on physicians' perceptions of their patients' expectation for an antibiotic in both groups of physicians. Besides

family physicians, patients feeling that antibiotics would be beneficial and being more educated are the most important factors influencing physicians' perceptions of their patients' antibiotic expectations.

Physician's perception of patient's antibiotic expectation, being a family physician and lack of professional experience are the other factors effective on physician's antibiotic prescribing behavior.

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