Research Article (Araştırma makalesi)

Evaluation of The Awareness of Medical Practitioners About Drug-Induced Gingival Enlargement: A Preliminary Study

Tıp Doktorlarının İlaçlara Bağlı Diş Eti Büyümesi Hakkında Farkındalıklarının Değerlendirilmesi: Bir Ön Çalışma

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Özet

Amaç: Dişeti büyümesi, etyolojisinde dental plak kaynaklı inflamasyon, hormonlar, genetik, malign veya benign lezyonlar, ilaçlar olan hiperplazi ve hipertrofi ile karakterize klinik durumdur. Antikonvülsanlar, kalsiyum kanal blokerleri, immünsüpresanlar ve yüksek doz oral kontraseptifler dişeti büyümesi yapan ilaçlardır. Çalışmamızın amacı; uzman ve pratisyen tıp doktorları arasında dişeti büyümesi yapan ilaç farkındalığını araştırmaktır.

Gereç ve Yöntemler: Anket çalışmamıza toplamda 100 kişi katıldı. Katılımcıların dişeti büyümesi yapan ilaç farkındalığının değerlendirmek için self-reported bir anket formu oluşturuldu. Anket formu Google forms üzerinden online olacak şekilde hazırlandı. Anket çevrimiçi olduğundan, anketin dağıtılması ve tanıtılması yöntemi sosyal ağ üzerinden (facebook) ve Apple store'dan (WhatsApp) yapıldı.

Bulgular: Katılımcıların % 27si antikonvulzanların dişeti büyümesi yaptığını bildirmiştir, bunu % 23 oranında immunsüpresanlar, % 19 ile Ca canal blokerleri, % 11 ile oral kontraseptifler takip etmiştir. Literatürde antibiyotikler ve Non-Steridal Antiinflamatuar (NSAİ) ilaçların dişeti büyümesi yaptığına dair bir konsensus olmamasıyla birlikte, katılımcıların %9,2si antibiyotiklerin %4,3 ü NSAİ'lerin, %5,4 ü antideprasanların dişeti büyümesi yaptığını bildirmişlerdir.

Sonuç: Sağlık çalışanları arasında yapılan ters ilaç etkisi farkındalığını değerlendiren çalışmalarda, çalışanların bu konuda bilgi sahibi olduğu ama bu durumu bildirmede yetersiz kaldığını göstermiştir. Bizim çalışmamızda, pratisyen ve uzman tıp hekimlerin dişeti büyümesi yapan ilaç farkındalığının yetersiz olduğunu düşünmekteyiz.

Anahtar Kelimeler: Dişeti büyümesi, Antikonvülzanlar, Ca kanal blokerleri, İmmünsüpresifler, Yüksek doz oral kontraseptifler

Abstract

Objective: Gingival enlargement is a clinical condition characterized by hyperplasia and hypertrophy, which has an etiology of inflammation originating from dental plaque, hormones, genetics, malignant or benign lesions, and drugs. The drugs causing gingival enlargement include anti-convulsants, calcium channel blockers, immunosuppressants, and high-dose oral contraceptives. This study aimed to investigate the awareness of specialist and practitioner medical doctors about the drugs causing gingival enlargement.

Material and Methods: A total of 100 respondents participated in this questionnaire study. A self-reported questionnaire was formed to evaluate the awareness of the study participants about drugs causing gingival enlargement. The questionnaire was prepared online using Google forms and was introduced and distributed on the social networks of Facebook and WhatsApp.

Results: % 27 of the respondents reported that anti-convulsants caused gingival enlargement, followed by immunosuppressants at the rate of 23%, calcium channel blockers at 19%, and oral contraceptives at 11%. Although there is no consensus in the literature that antibiotics and non-steroidal anti-inflammatory drugs (NSAIDs) cause gingival enlargement, 9.2% of the study respondents reported that antibiotics caused gingival enlargement, 4.3% NSAIDs, and 5.4% antidepressants.

Conclusion: In studies evaluating the awareness of healthcare personnel about drug adverse effects, it has been shown that personnel have knowledge on this subject, but do not report this at a sufficient level. The results of this study suggest that specialist and practitioner medical doctors had insufficient awareness about drugs causing gingival enlargement.

Keywords: Anti-convulsants, Calcium channel blockers, Gingival enlargement, Immunosuppressives, High-dose oral contraceptives

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INTRODUCTION

Gingival enlargement is a clinical condition characterized by hyperplasia and hypertrophy, which has an etiology of chronic inflammation originating from microbial dental plaque, hormones, genetics, malignant or benign lesions, and several local and systemic factors such as drugs (1). Of the factors causing gingival enlargement, drugs are important as the preparations seen to be appropriate can be changed by the physician. The drugs causing gingival enlargement can be separated into four groups anti-convulsants, calcium channel blockers, immunosuppressants, and high-dose oral contraceptives. The gingival enlargements formed by these drugs cannot be clinically and histologically differentiated from each other (2).

Phenytoin is an anti-convulsant widely used in the treatment of epilepsy, and it has been reported to cause gingival enlargement in up to 50% of patients (3). Calcium channel blockers are used in the treatment of cardiovascular diseases such as hypertension. The prevalence of these agents causing gingival enlargement is thought to vary between 20% and 83% (4). Cyclosporin and Tacrolimus are immunosuppressants used in organ transplantations and autoimmune diseases, with a prevalence of causing gingival enlargement of approximately 25% (5). In studies of the use of high-dose oral contraceptives for birth control, hypertrophic gingivitis and lesions similar to pregnancy-related epulis have been reported (6).

Drugs causing gingival enlargement do not cause growth in every patient and do not cause growth in every region even in patients where enlargement is seen (7). If left untreated, enlargement can cause aesthetic and functional problems. As dental enlargement can prevent regular plaque control and periodontal treatment, there are various treatment options ranging from terminating or changing the drug in some cases to surgery in some cases (8).

Another important point about drugs that cause gingival enlargement is that patients think that these complaints are related to the mouth and report them to dentists rather than the physician who prescribed the drug (9, 10). Terminating or changing the drug causing this condition is not a decision that can be made by the dentist or specialist dentist alone. The patient must consult the medical doctor. The patient must go to the medical doctor for the drug to be terminated or changed and to the dentist for oral tissues to be checked again. This is a time-consuming and troublesome process for the patient the medical doctor and the dentist. After this point, drug-related gingival enlargement can be treated with the collaboration of the medical doctor and the dentist for the health of the patient.

No study could be found in the literature related to the awareness of medical doctors about drugs causing gingival enlargement. Therefore, this study aimed to investigate the awareness of specialist and practitioner medical doctors about the drugs causing gingival enlargement, to be able to create an awareness of this subject which can be overlooked and to provide an immediate resolution for patient health.

MATERIALS AND METHODS

Approval for this study, which was conducted between March 2021 and October 2021, was granted by the Non-Interventional Clinical Research Ethics Committee (decision no:01, session no:2021/06). All procedures were applied by the 2013 revised 1975 Helsinki Declaration.

The study sample was composed of 100 practitioners and specialist medical doctors living in Turkey. A self-reported questionnaire was formed to evaluate the awareness of the study participants about drugs causing gingival enlargement. The questionnaire was prepared online using Google forms and was introduced and distributed on the social networks of Facebook and WhatsApp.

The questionnaire comprised 2 pages. The first section of the questionnaire explained the aim and importance of the study and provided the e-mail address and telephone number of the researchers that could be used if the participant had any questions or required any explanation. Participants who read the information in the introductory section and confirmed participation in the study completed the second page of the questionnaire, which consisted of 5 questions related to age, gender, specialist status, and professional experience, followed by 5 questions related to drugs causing gingival enlargement. These survey questions were prepared by reviewing the literature in a self-reported manner (11-16).

Statistical Analysis

Data obtained in the study were analyzed statistically using Jamovi vn. 1.0.4 software (accessed from https://www.jamovi.org). Descriptive statistics were used in the analysis of demographic characteristics such as gender, age range, date of graduation, the institute where they worked, and specialist status. The responses given to these questions about demographic characteristics were examined with the Pearson Chi-square test. A value of $p \leq 0.05$ was accepted as statistically significant.

RESULTS

The sociodemographic characteristics of the study participants are shown in **Table 1**. Of the total

Table 1. Rates of demographic characteristics of the participants

Demographic characteristics	N = 100
Gender	
Male	55 (55%)
Female	45 (45%)
Age	
<45	86 (86%)
>45	14 (14%)
Graduation date	
<5 Years	35 (35%)
5-10 Years	21 (21%)
10-15 Years	16 (16%)
>15 Years	28 (28%)
Institute	
Public Hospital	41 (41%)
Ünıversity Hospital	51 (51%)
Private Hospital	8 (8.0%)
Are You a Specialist Physician?	
Yes	52 (52%)
No	48 (48%)

participants, 85% were aged <45 years and 35 had graduated more than 5 years previously. No significant difference was determined with respect of gender and specialist status.

No statistically significant difference was determined between the practitioner and specialist physicians concerning the responses given to the questions about the drugs causing gingival enlargement **(Table 2)**. % 27 of the respondents reported that anti-convulsants caused gingival enlargement, followed by immunosuppressants at the rate of 23%, calcium channel blockers at 19 %, and oral contraceptives at 11%. There were more specialist physicians in the calcium channel blockers and anti-convulsants groups, and more practitioner physicians in the immunosuppressants group. No significant difference was determined in the oral contraceptives group. When the responses were examined according to professional experience and the institute where they worked, no significant difference was determined. Of the total study respondents, 9.2% reported that antibiotics caused gingival enlargement, 4.3 % stated NSAIDs and 5.4% antidepressants.

The rate of physicians performing oral examinations in respect of the complaints of gingival enlargement was 47%, and the rate of referral to dentists was 71% **(Table 3)**. It was seen that oral examination for the complaints of gingival enlargement was performed more by doctors working in private hospitals. When the rates of oral examination and referral to dentists were examined, there was seen to be no statistically significant difference with respect to professional experience and specialist status.

The responses to the question of where the participants had acquired knowledge of drugs causing gingival enlargement were reported to be from lessons and workshops by 36%, and from journals and books by 21% **(Table 4)**.

DISCUSSION

The relationship between systemic and periodontal disease is a popular subject of research, and there are studies in the literature on the awareness of medical doctors on this topic. Although the cause of drug-induced gingival enlargement has not been clarified, it is known to be multi-factorial. Some factors such as gingival inflammation, presence of dental plaque, periodontal pocket depth, dose, and duration of cyclosporine treatment are thought to be risk factors and affect gingival growth. This study aimed to introduce a new perspective by measuring the awareness of medical doctors about drug-related gingival growth, which is frequently seen in our clinic.

In a study in Ethiopia that evaluated the knowledge of healthcare personnel about the adverse effects of drugs, 66% of the respondents reported that they knew about this and 49.1% stated that they had encountered such a condition (11). In another study of the adverse effects of drugs conducted on doctors, nurses, and pharmacists in Vietnam, 56.2% reported that they could identify adverse drug interactions, and only 59.3% had reported this condition at least once in their career (12). In the current study, % 27 of the respondents reported that they knew that anti-convulsants caused gingival enlargement, followed by immunosuppressants at the rate of 23 %, calcium channel blockers at 19%, and oral contraceptives at 11%. As these drug groups are not specifically used by specialists and practitioners, these results can be considered to be low.

A previous study examined the awareness of endocrinologists and dentists of the relationship between diabetes and periodontitis, and the results showed that almost half of the endocrinologists (48.8%) reported that they often made oral examinations of patients with diabetes mellitus when the patients mentioned dental problems (13). Dubar et al. applied a questionnaire to practitioner physicians to evaluate opinions of oral systemic disease. According to the questionnaire results,

Table 2. Comparing the answers of Participants 'Which Of The Following Drug Groups Did You Observe Gingival Enlargement Or Did You Get Feedback From The Patients In This Way? question with demographic characteristics and a chi-square test

Demographic characteristics	Number of answers	Antibiotics N= 17 (9.2%)	Anticonvulsants N= 50 (27%)	Ca Channel Blockers N= 35 (19%)	Immune Suppressants N= 43 (23%)	Nsaii N= 8 (4.3%)	Oral Contraceptives N= 21 (11%)	SSRI antidepressants N=10 (5.4%)	p-value
Gender	184								0.80
Male		10 (10%)	28 (29%)	17 (18%)	22 (23%)	6 (6.2%)	9 (9.3%)	5 (5.2%)	
Female		7 (8.0%)	22 (25%)	18 (21%)	21 (24%)	2 (2.3%)	12 (14%)	5 (5.7%)	
Age	184								0.60
<45		15 (9.6%)	40 (25%)	30 (19%)	39 (25%)	8 (5.1%)	16 (10%)	9 (5.7%)	
>45		2 (7.4%)	10 (37%)	5 (19%)	4 (15%)	0 (0%)	5 (19%)	1 (3.7%)	
Graduation date	184								0.160
<5 years		2 (3.7%)	13 (24%)	7 (13%)	19 (35%)	2 (3.7%)	6 (11%)	5 (9.3%)	
5-10 years		5 (11%)	10 (23%)	8 (18%)	10 (23%)	4 (9.1%)	5 (11%)	2 (4.5%)	
>15 years		5 (9.6%)	20 (38%)	10 (19%)	8 (15%)	0 (0%)	8 (15%)	1 (1.9%)	
10-15 years		5 (15%)	7 (21%)	10 (29%)	6 (18%)	2 (5.9%)	2 (5.9%)	2 (5.9%)	
Institute	184								0.297
Private Hospital		3 (16%)	5 (26%)	4 (21%)	3 (16%)	1 (5.3%)	2 (11%)	1 (5.3%)	
Unıversity Hospital		7 (8.1%)	27 (31%)	14 (16%)	26 (30%)	4 (4.7%)	7 (8.1%)	1 (1.2%)	
Public Hospital		7 (8.9%)	18 (23%)	17 (22%)	14 (18%)	3 (3.8%)	12 (15%)	8 (10%)	
Are You a Specialist Physician?	184								0.015*
No		5 (6.2%)	15 (19%)	12 (15%)	28 (35%)	4 (5.0%)	10 (12%)	6 (7.5%)	
Yes		12 (12%)	35 (34%)	23 (22%)	15 (14%)	4 (3.8%)	11 (11%)	4 (3.8%)	

Table 3. Did you perform an oral examination for your patients' complaints in this direction?" and "Did you refer your patients to the dentist for their complaints in this direction?" Comparison of the answers given to the questions by demographic characteristics and chi-square test

		Have you done a mouth exam?			Have you referred to the dentist?		
Characteristic	**N**	**Yes N = 47 (47%)**	**No N = 53 (53%)**	***p*-value**	**Yes N = 71 (71%)**	**No N = 29 (29%)**	***p*-value**
Gender	100			0.18			0.81
Male		22(40%)	33(60%)		38 (69%)	17 (31%)	
Female		25(56%)	20(44%)		33 (73%)	12 (27%)	
Age	100			0.96			>0.99
<45		41(48%)	45(52%)		61 (71%)	25 (29%)	
>45		6 (43%)	8 (57%)		10 (71%)	4 (29%)	
Graduation date	100			0.34			0.1
<5 years		14(40%)	21(60%)		21 (60%)	14 (40%)	
5-10 years		8 (38%)	13(62%)		15 (71%)	6 (29%)	
>15 years		10(62%)	6 (38%)		15 (94%)	1 (6.2%)	
10-15 years		15(54%)	13(46%)		20 (71%)	8 (29%)	
Institute	100			0.006*			0.077
Private Hospital		26(63%)	15(37%)		33 (80%)	8 (20%)	
University Hospital		16(31%)	35(69%)		31 (61%)	20 (39%)	
Public Hospital		5 (62%)	3 (38%)		7 (88%)	1 (12%)	
Are You a Specialist Physician?	100			0.98			0.49
No		25 (48%)	27 (52%)		39 (75%)	13 (25%)	
Yes		22 (46%)	26 (54%)		32 (67%)	16 (33%)	

Table 4. "Where did you get the information about the drugs that cause gingival enlargement?" Comparison of the answers given to the question by demographic characteristics and chi-square test

Characteristic	Number of answers	From congresses N = 15 (9.9%)	From Lessons and Workshops N = 54 (36%)	Internet N = 18 (12%)	From Journals and Books N = 32 (21%)	From dentists N = 14 (9.3%)	Others N = 18 (12%)	p-value
Gender	151							0.72
Male		7 (8.8%)	33 (41%)	9 (11%)	17 (21%)	6 (7.5%)	8 (10%)	
Female		8 (11%)	21 (30%)	9 (13%)	15 (21%)	8 (11%)	10 (14%)	
Age	151							0.77
<45		13 (9.8%)	48 (36%)	17 (13%)	28 (21%)	13 (9.8%)	14 (11%)	
>45		2 (11%)	6 (33%)	1 (5.6%)	4 (22%)	1 (5.6%)	4 (22%)	
Graduation date	151							0.175
<5 years		2 (4.3%)	18 (39%)	8 (17%)	8 (17%)	2 (4.3%)	8 (17%)	
5-10 years		2 (6.9%)	12 (41%)	4 (14%)	4 (14%)	6 (21%)	1 (3.4%)	
>15 years		6 (17%)	11 (31%)	4 (11%)	9 (26%)	3 (8.6%)	2 (5.7%)	
10-15 years		5 (12%)	13 (32%)	2 (4.9%)	11 (27%)	3 (7.3%)	7 (17%)	
Institute	151							0.85
PrivateHospital		6 (9.5%)	22 (35%)	8 (13%)	11 (17%)	8 (13%)	8 (13%)	
University Hospital		7 (9.2%)	29 (38%)	9 (12%)	18 (24%)	4 (5.3%)	9 (12%)	
Public Hospital		2 (17%)	3 (25%)	1 (8.3%)	3 (25%)	2 (17%)	1 (8.3%)	
Are You a Specialist Physician?	151							0.65
No		9 (11%)	28 (34%)	11 (13%)	20 (24%)	7 (8.5%)	7 (8.5%)	
Yes		6 (8.7%)	26 (38%)	7 (10%)	12 (17%)	7 (10%)	11 (16%)	

63% of the respondents always or often performed oral examination (14). In the current study, 47% of the physicians were found to perform oral examinations. The difference between these studies could be due to differences in the number of participants and the types of questions asked in the research.

In a study by Taşdemir et al, practitioners and specialist medical doctors were asked the reasons why they referred or did not refer patients to a dentist (gingival enlargement was not among the options). It was reported that 56.5% of the physicians referred patients to dentists, with the main reason being gingival bleeding at the rate of 44% (15). In a study of gynecologists in Brazil to investigate the awareness of the relationship between periodontal disease and the risk of premature birth and low birth weight, 44.4% of the respondents stated that they always referred pregnant patients for dental examination (16). In the current study, the rate of referral to dentists for complaints of gingival enlargement was found to be higher than the rates in similar studies. This was considered to be because medical doctors thought that gingival enlargement was related to dentistry.

In a previous study of medical doctors in Turkey which evaluated the relationship between periodontal and systemic disease, the study participants stated that they had learned about the relationship primarily (28%) from lessons and workshops (15). Initial education was seen to be the leading source (45.85%) of awareness of oral-systemic disease in a study of practitioner physicians in France (14). In the current study, the leading response to the question of where the knowledge had been obtained was lessons and workshops (36%), which was consistent with the literature.

Limitations of this study can be said to be the low number of participants, that there was no group of doctors working with drugs causing gingival enlargement, and that the questionnaire was self-reported and online.

In conclusion, the results of this study demonstrate that despite medical doctors having some knowledge of drugs causing gingival enlargement, the level of awareness is not sufficient.

Ethical approval: This study was conducted in accordance with the Declaration of Helsinki and granted by the Non-Interventional Clinical Research Ethics Committee (decision no:01, session no:2021/06). An informed consent form was taken from the participants.

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