Journal of Dentomaxillofacial Radiology, Pathology and Surgery

Summer 2018, Volume 7, Number 2

Research Paper: Evaluation of Malpractice in Patients Referred to the Oral and Maxillofacial Medicine Department of Mashhad Dental School

Maryam Basirat[1], Atessa Pakfetrat[2*], Abbas Javadzadeh Bolouri[3], Hasan Hoseinpour Jajarm[4], Parya Hasanpour[5]

1. Assistant Professor, Medical Education Research Center, Dental Sciences Research Center, Department of Oral and Maxillofacial Medicine, Faculty of Dentistry, Guilan University of Medical Sciences, Rasht, Iran.
2. Professor, Oral and Maxillofacial Diseases Research Center, Department of Oral and maxillofacial Medicine, Faculty of Dentistry, Mashhad University of Medical Sciences, Mashhad, Iran.
3. Associate Professor, Oral and Maxillofacial Diseases Research Center, Faculty of Dentistry, Mashhad University of Medical Sciences, Mashhad, Iran.
4. Professor, Oral and Maxillofacial Diseases Research Center, Department of Oral and maxillofacial Medicine, Faculty of Dentistry, Mashhad University of Medical Sciences, Mashhad, Iran.
5. Dental Student, Anzali International Branch, Guilan University of Medical Sciences, Rasht, Iran.

Use your device to scan and read the article online

Citation Basirat M, Pakfetrat A, Javadzadeh Bolouri A, Hoseinpour Jajarm H, Hasanpour P. Evaluation of Malpractice in Patients Referred to the Oral and Maxillofacial Medicine Department of Mashhad Dental School. Journal of Dentomaxillofacial Radiology, Pathology and Surgery. 2018; 7(2):69-76.

http://dx.doi.org/10.32598/3dj.7.2.69

Article info:
Received: 15 Dec 2017
Accepted: 27 Mar 2018
Available Online: 01 Jun 2018

Keywords:
Malpractice, Therapy, Oral Medicine, Error

ABSTRACT

Introduction: Medical errors in dentistry refer to mistakes during operation or other dental procedures, negligence during treatment, and delayed treatment despite observing unusual results after examinations or other paraclinical tests. Generally, diagnostic errors often cause delay in or incorrect treatment. This study evaluates the rate of unnecessary or incorrect treatment of oral and maxillofacial lesions in patients referred to the Oral Medicine Department of Mashhad Dental School, Mashhad, Iran.

Materials and Methods: This descriptive cross-sectional study was conducted on 372 patients referred to the Oral Medicine Department of Mashhad Dental School in 2010. After collecting their demographics, they were examined by two oral health professionals. Depending on the type of the lesion, the patients underwent a follow-up or pathological examination. In this way, the final diagnosis was made for each patient and they were treated accordingly. In the end, the collected data were analyzed in SPSS and the results were presented using by descriptive statistics in tables and graphs.

Results: The Mean±SD of time between the onset of symptoms and confirmation of diagnosis was 22.62±12.2 months (range: 1 day to 15 years). The Mean±SD of time between the first visit to a physician and the referral to the Oral Department was 12.64±4.39 months (range: 0 days to 11 years). At the last referral to the physician and before referring to the department, 200(53.8%) patients did not receive treatment, while 69(18.5%) received correct treatment, 80 (21.5%) incorrect treatment, and 23(6.2%) unnecessary treatment.

Conclusion: Based on the findings of this study, about half of the patients did not receive dental treatment, about 20% received incorrect treatment and about 6% unnecessary treatment. Timely referral to a dental specialist for diagnosis and treatment is better than incorrect and unnecessary treatment (which delays treatment and even cause wrong diagnosis due to the temporary improvement of some lesions). A comprehensive effort should be made to find out the causes of misdiagnoses and resolve them through the promotion of education and development of teamwork between physicians and dentists.

*** Corresponding Author:**
Atessa Pakfetrat, PhD.
Address: *Oral and Maxillofacial Diseases Research Center, Department of Oral and maxillofacial Medicine, Faculty of Dentistry, Mashhad University of Medical Sciences, Mashhad, Iran.*
Tel: *+98 (51) 38713638*
E-mail: *pakfetrata@mums.ac.ir*

Journal of Dentomaxillofacial Radiology, Pathology and Surgery

1. Introduction

A medical error is an adverse event that hurts a patient due to medical management errors. It is not caused by the patient's underlying disease and can be prevented with adequate medical knowledge [1]. Medical errors are human errors in the health care system which result in human activity errors (activities that are mainly cognitive). Hence, it is not surprising that human errors are mainly due to inadequate knowledge of cognitive tasks [2]. Cognitive factors are involved in various levels of healthcare system.

At the lowest level, individuals have the most important role. At the next level, errors can occur due to interactions between individuals and technology (e.g. human-computer interaction). At the third level, the errors occur due to the interaction of a group of individuals with complex technology in a distributed cognitive system. At the fourth level, errors are related to organizational structures (coordination, communication, standardization of work process), the function of organizations (policies and guidelines), and national regulations. At these higher levels, cognitive factors are more influential [3, 4].

Medical errors in dentistry are mistakes during operation or other dental procedures, negligence during treatment, and delayed treatment despite observing unusual results after examinations or other paraclinical tests. Delay in treatment often results from errors in diagnosis. For example, errors in the detection of ameloblastoma and other central jaw lesions may lead to a delay in their treatment. Neglect in the treatment and follow up of the elderly and immunocompromised patients may result in their death or organic and functional defects. Research in the field of medical errors is rare in Iran.

Kiani and Sheikhazadi retrospectively investigated dental malpractice claims during 2002-2006 in Iran [5]. During 5 years, 412 cases of dental malpractice were reported. Majority of the complaints were about fixed prosthodontics and oral surgery in the private sector and against general dentists. The dentists were found guilty in 56.7% of the complaints related to clinical cases and 40% of non-clinical cases. This is a warning to dentists who should consider ethical principles when treating patients. In Masoumi et al. study on the causes of patients' concerns in the emergency department, 48.3% of the patients reported at least one out of 10 main concerns during their emergency department stay: medical students' mistakes (18.7%), diagnostic errors (7.1%), physicians' mistakes (4.5%), medical errors (2%), nurses' mistakes (3%), performing a wrong test or practice (2.7%), faulty medical equipment (8.6%), being mistaken for another patient (4.4%), injuries caused by falling (5.6%), and long waiting at the emergency department (19%) [6].

In another study in Iran, it was reported that most dentists sued for medical malpractice were male; 87.2% were general dentists; 4.4% endodontists, and 2.4% periodontists [7]. Wright et al. in a study on the frequency of dental errors, showed that 40% of the participants reported time constraint and 38.5% poor management as the most frequent causes of medical errors [8]. Moreover, they found out that 2 errors occur each day and 1.4% of these errors can lead to an adverse event. Green et al. reported fatigue, nutritional status, emotions such as stress and anxiety, situational awareness, and multi-tasking as the causes of medical errors [4].

Physicians, patients, and healthcare policymakers may underestimate the severity and extent of injuries and risks. Therefore, the epidemiology of medical errors seems essential. It concentrates mainly on the prevalence and consequences of error, the most common errors that clinicians make, and the risk factors that increase the likelihood of injury from a medical error [2]. In this regard, this study aims to investigate the frequency of unnecessary or incorrect treatment of oral and maxillofacial lesions in patients referred to the Oral Medicine Department of Mashhad Dental School, Mashhad, Iran.

2. Materials and Methods

This cross-sectional study was conducted on 372 patients referred to the Oral Medicine Department of Mashhad Dental School from March 2009 to February 2010. They were examined by physicians, general dentists or specialists. First by using a questionnaire, the patients' information was collected regarding their age, gender, history of complaint, time interval from the first visit to a physician until their referral to the department, time interval from physician's referral to the department, type of complaint, specialty of the physician, diagnosis of the dentist, existence of a referral letter, and type of treatment that patient received at the last dental visit. Then, the patients were examined by at least two experts in oral and maxillofacial medicine under curing light and by a tongue depressor. Then, the oral lesions were divided into the following categories: normal lesions, ulcer, red and white lesions, pigmented lesions, peripheral lesions, central lesions, cervical lesions, and others.

A complete set of examination dental mirrors, explorers, dental tweezers and aspiration tools was already

available for further necessary examination. Also, diagnostic procedures such as radiography, aspiration, and histopathologic examinations were conducted if necessary. Some patients already had radiography images or histopathologic examinations that if they were not appropriate, the repetition of taking radiography or biopsy was prescribed for them.

A complete or partial resection of the lesion was done by professional assistants in Oral Medicine Department and Maxillofacial Surgery Department. The collected samples were sent to the Oral and Maxillofacial Pathology Department for histopathologic examination. It should be noted that the diagnosis of lesions was first based on the history, clinical, and paraclinical findings. For lesions in doubt, a definitive diagnosis was made by biopsy and histopathologic examination.

Treatments of the last dentist on the patient were divided into 4 categories of "no treatment", "correct treatment", "incorrect treatment", and "unnecessary treatment" based on medical prescriptions. The correct treatment is a therapy that matches or is consistent with the diagnostic tests or treatments of the disease, whether symptomatic or causative. The incorrect treatment is a therapy that is not in accordance with the diagnostic tests or predicted treatments. It is neither symptomatic nor causative treatment which delays the treatment and causes patients' more pain or complications. Finally, unnecessary treatment is a therapy that has no role in the improvement of the disease, and its delay had no complications in patients. If the symptoms were receded, it would be due to the side effects of the drug or its placebo effect.

3. Results

Results reported that 150 male (Mean±SD age=36.7±18.79) and 222 female patients (Mean±SD age=37.4±19.01) were referred. 164 patients (44.1%) had referral letter and 208 patients (55.9%) did not have it.

The Mean±SD time between the first visit to a physician and the referral to the Oral Medicine Department was 12.64±4.39 months (range: 0 days to 11 years), and the Mean±SD time between dentist' referral of patients to the department was 11.03±0.41 months (range: 0 days to 11 years). Based on the results, 177(47.6%) patients had one visit; 93(25%) two visits; 50 (13.4%) three visits; 20(5.4%) four visits; 12(3.2%) five visits; 10(2.7%) six visits; 2(0.5%) seven visits; 3(0.8%) eight visits; 4(1.1%) ten visits; and 1 (0.3%) more than 10 visits before referring to the Oral Medicine Department (Figure 1).

Twelve patients (3.2%) received unnecessary diagnostic tests such as CT scan, sonography, biopsy, microbial culture, or Complete Blood Count (CBC). Moreover, 43 patients (11.6%) did not get a definite diagnosis because of their refusal for giving biopsy or follow up. At last dental visit and before referral, 200(53.8%) subjects received no treatment; 69(18.5%) correct treatment; 80(21.5%) incorrect treatment; and 23(6.2%) unnecessary treatments (Figure 2).

Based on oral lesion categories, the most common incorrect treatment was related to ulcers (40%) followed by peripheral lesions (28.8%), red and white lesions (16.3%), central lesions (10%), normal and other lesions (2.5%), while the most common unnecessary treatment was related to red and white lesions (56.5%) followed by ulcers (17.4%), peripheral lesions (17.4%), normal and other lesions (4.3%) (Table 1).

Based on the type of oral lesions, the results showed that the most common type of lesion in referred patients was lichen planus/lichenoid reaction (Figure 3). The most common incorrect treatment was related to pemphigus (15%) (Figure 4). Of 9 referred patients with Squamous Cell Carcinoma (SCC), 6 had received incorrect treatments. Of 69 correct treatments, the most common was related to the treatment of lichen planus/lichenoid reaction (27.5%) followed by abscess (24.6%), lymphadenitis (10.1%), aphthous ulcers (5.8%), pemphigus (4.3%), odontogenic cyst (4.3%), and candidiasis (1.4%).

The most common unnecessary treatment was related to lichen planus/lichenoid reaction (47.8%), followed by salivary gland mucous retention phenomenon (8.7%), pemphigus, primary herpetic lesions, and geographic tongue (4.3%). Out of 80 patients with definite diagnosis of lichen planus, 43(53.8%) received no treatment, while 19(23.8%) correct treatment; 8(10%) incorrect treatment, and 10(12.5%) unnecessary treatment. Moreover, of 24 patients with a definite diagnosis of abscess, 7(29.2%) received no treatment, and 17(70.8%) correct treatment. The frequency of last treatments received by referred patients based on the specialty of the physicians and dentists is shown in Table 2.

4. Discussion

The first research priority in dentistry and in the field of human resources is to assess the dentists' needs for their continuing education, to develop treatment protocols for dentists, and to evaluate their effectiveness. On the other hand, the first step to determine the prevalence of dental malpractice is to investigate their causes. In

Journal of Dentomaxillofacial Radiology, Pathology and Surgery

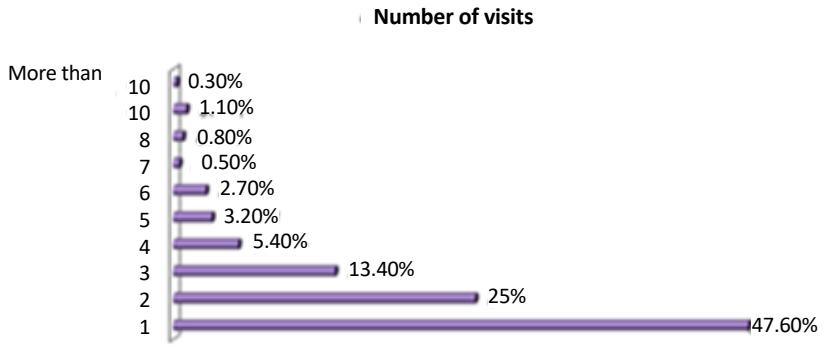

Figure 1. Frequency distribution of total patients referred to the oral Medicine Department based on the number of visits

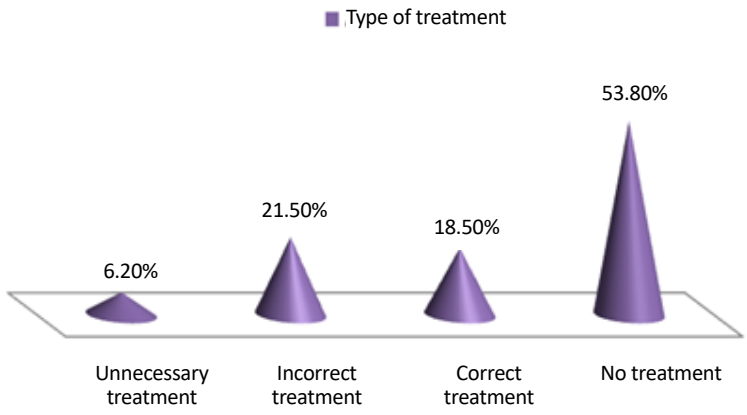

Figure 2. Frequency distribution of treatments received by referred patients

Table 1. The frequency of last treatments received by referred patients based on oral lesions categories

Oral Lesions Category	No Treatment		Correct Treatment		Incorrect Treatment		Unnecessary Treatment		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Normal lesions	6	3	0	0	2	2.5	1	4.3	9	2.4
Ulcers	25	12.5	7	10.1	32	40	4	17.4	68	18.3
Red and white lesions	73	36.5	20	29	13	16.3	13	56.5	119	32
Pigmented lesions	7	3.5	0	0.0	0	0.0	0	0.0	7	1.9
Peripheral lesions	44	22	5	7.2	23	28.8	4	17.4	76	20.4
Central lesions	33	10.5	27	39.1	8	10	0	0	68	18.3
Cervical lesions	1	0.5	7	10.1	0	0.0	0	0	8	2.2
Others	11	5	3	4.3	2	2.5	1	4.3	17	4.6
Total	200	100	69	100	80	100	23	100	372	100

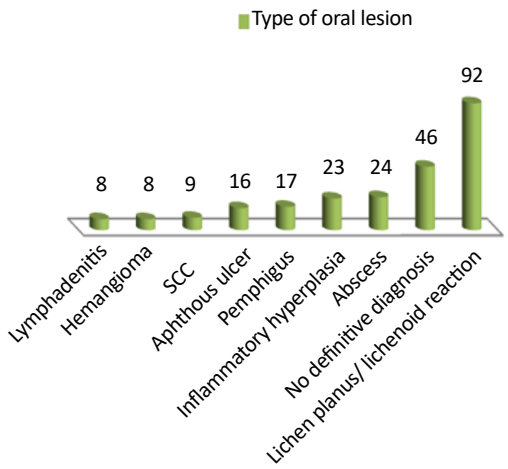

Figure 3. Frequency distribution of patients referred to the oral Medicine Department based on the type of oral lesion

this study, we attempted to investigate the frequency of dental malpractice in patients referred to the Oral Medicine Department of Mashhad Dental School in 2010. Since there are few similar studies in Iran, it was difficult to compare our results.

In other countries, there are also few studies in this area using different tools, and they are mostly retrospective. On the other hand, finding the reasons for the diagnostic errors are highly associated with the educational system of every country and numerous other issues. So, an extensive planning is necessary to solve medical errors.

In this study, 12 (3.2%) patients complained of receiving unnecessary diagnostic tests such as CT scan, sonography, biopsy, culture, and CBC. For example, a general practitioner used ultrasound to diagnose lymphadenitis while an internist used it to diagnose masseter hypertrophy. Also, an ENT specialist performed a biopsy on the leaf-like papillae suspecting of its pathological change. It should be mentioned that in this study, we did not consider the additional panoramic and periapical radiography prescribed for the patient as an unnecessary diagnostic test. Therefore, the number of patients received unnecessary diagnostic tests may be more in our study.

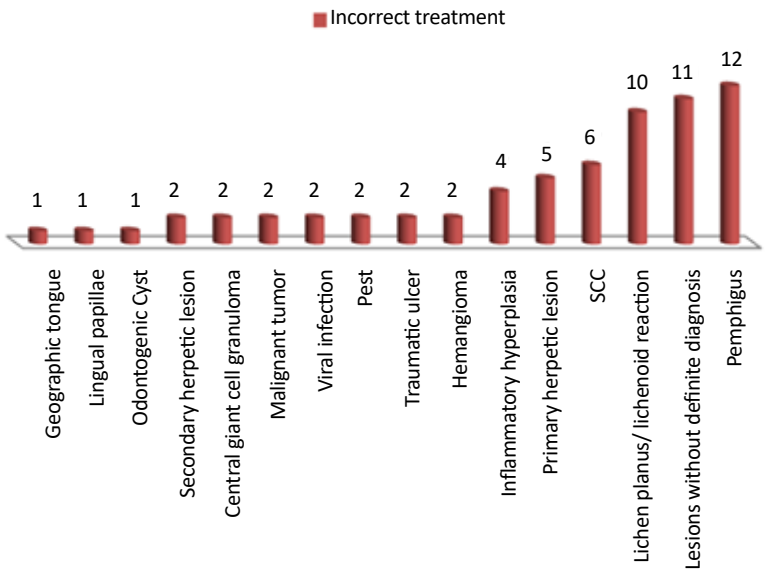

Figure 4. Frequency distribution of the most common malpractice in reffered patients based on the type of oral lesion

Table 2. The frequency of last treatments received by referred patients based on the specialty of the physicians and dentists

Speciality	No Treatment		Correct Treatment		Incorrect Treatment		Unnecessary Treatment		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
General practitioner	7	3.5	3	4.3	17	21.3	6	26.1	33	8.9
ENT specialist	14	7	4	5.8	10	12.5	1	4.3	29	7.8
Dermatologist	8	4	6	8.7	3	3.8	0	0	17	4.6
Internist	6	3	1	1.4	3	3.8	0	0	10	2.7
General dentist	116	58	38	55.1	39	48.8	11	47.8	204	54.8
Periodontist	12	6	5	7.2	3	3.8	2	8.7	22	5.9
Endodontist	4	2	2	2.9	0	0	0	0	6	1.6
Pediatric dentist	3	1.5	2	2.9	1	1.3	0	0	6	1.6
Prosthodontist	10	5	2	2.9	0	0	0	0	12	3.2
Oral and maxillofacial surgeon	6	3	3	4.3	1	1.3	0	0	10	2.7
Others	14	7	3	4.3	3	3.8	3	13	23	6.2

Journal of Dentomaxillofacial Radiology, Pathology and Surgery

The consequences of using unnecessary diagnostic tests include imposing additional costs on the patients, insurance companies, and governments, as well as wasting time and even getting incorrect diagnostic results. For example, for a patient with atypical facial pain who referred to an ENT specialist, unnecessary CT scan prescription drew the attention of the physician to sinus retention cyst, ignoring the patient's main problem (facial pain), delaying in treatment, and even recommendation for sinus surgery.

In this study, about 50% of patients did not receive treatment for their oral lesions, and the most common complaints of referred patients were Red and white lesions, Peripheral lesions, Central lesions, and ulcers, respectively. Regarding the categorization of oral lesions in this study, the results showed that the most common incorrect treatments were related to ulcers, peripheral, red and white, central, and normal lesions, while the most common unnecessary treatments were related to red and white lesions, ulcer, peripheral, normal and other lesions.

Although the most frequent complaints of the patients referred to the Oral Medicine Department were usually about having ulcers [9], unfortunately, the majority of physicians and dentists, even those with specialty unrelated to their area of study, considered themselves well-informed about the treatment of ulcers, and usually did not refer them to the department or referred with delay. Due to the heterogeneity of the specialty and the field of referral physicians, there were no conclusions about the frequency of treatment types and their comparison, and only the frequency of treatment types was mentioned (Table 2).

Since most of the incorrect treatments comprised the inappropriate use of antibiotics, perhaps most physicians assume that most lesions are infectious. For example, for peripheral lesions such as inflammatory hyperplasia, mucocele, and even SCC, they had prescribed antibiotics which not only increases the antimicrobial resistance but also delays the main treatment of the lesions and imposes a heavy cost on the patient. In one case, for the treatment of lichen planus, physicians had used cetylpyridinium chloride mouthwash which is obsolete. Moreover, some of these treatments could temporarily improve symptoms and mislead a patient not to continue the therapy and even to establish a wrong diagnosis for the physician.

Based on the type of lesions, most incorrect treatments were related to pemphigus (n=12), lesions without definite diagnosis (n=11), lichen planus/lichenoid reaction

(n=10), SCC (n=6), and initial herpes (n=5). Antibiotics had mistakenly been used to treat most of these lesions. For example, for treatment of pemphigus, oral and intravenous antibiotics and topical corticosteroids had been used. It should be noted that pemphigus is a life-threatening disease, and delayed treatment and inappropriate dosage can cause involvement of other organs (e.g. skin, eyes, etc.). Oral, intravenous, and even nystatin antibiotics were used for the treatment of SCC. While antibiotics and corticosteroids were used for the treatment of the geographic tongue and primary herpetic lesions.

Araghi et al. in their study on prescription errors of general dentists, reported that the most frequent errors were related to the administration of antiviral drugs (31%), antifungal drugs (30%), analgesics (23%), and antibiotics (16%) [10]. Medication errors are the most common errors threatening the patient's safety [11]. These types of errors are preventable events that occur as a result of inappropriate use of the drugs. The average number of prescribed drugs in Iran is higher than the standard level, and hence, high drug interactions are reported. In the study of Wadhwa et al. on medication errors in dentistry, it was shown that the most common error was the prescription of medication without specifying the appropriate dosage [12]. Based on Nojomi et al. study, 32% of physicians reported parents' requests for writing antibiotic prescriptions, and 24% of them accepted the request [13].

The results of Ossoff et al. are in line with our study results [14]. In both studies, pemphigus had been treated improperly with antibiotics due to diagnostic error. Our results are also consistent with the findings of Obuekwe et al. [15]. In our study, out of 9 referred patients with SCC complaint, 6 were treated incorrectly with medication and antibiotic therapy due to the wrong diagnosis of infection.

5. Conclusion

Based on the findings of this study, in many cases, the patients have been referred to physicians for treatment of their problems with a delay, and sometimes due to the lack of familiarity of physicians and dentists with oral lesions. The patients wander around various clinics and undergo unnecessary diagnostic tests. There is also a need for proper use of referral letters.

Based on the findings of this study, about half of the patients had not received treatment, while about 20% received incorrect treatments, and 6% unnecessary treatments. Therefore, receiving no treatment or timely referral to Oral and Maxillofacial specialists for treatment is better than receiving incorrect and unnecessary treatment (which delays treatment and even cause the wrong diagnosis due to the temporary improvement of some lesions). A comprehensive effort should be made to find out the causes and resolve them through educational improvement and development of collaboration between physicians and dentists for the diagnosis and treatment of the patients.

Ethical Considerations

Compliance with ethical guidelines

This study was approved by ethics committee of Mashhad university of medical sciences.

Funding

This article was based on an postgraduate thesis (Number 395) by Maryam Basirat which was successfully completed under the supervision of Dr. Atessa Pakfetrat and Dr. Hasan Hoseinpour Jajarm. This research was granted by Research Foundation of Mashhad University of Medical Sciences.

Authors contributions

Responsible for study concept and design, acquisition of data, drafting and critical revision of the manuscript for important intellectual content: Maryam Basirat, Atessa Pakfetrat, Abbas Javadzadeh Bolouri, and Responsible for Administrative, technical, and material support: All authors.

Conflict of interest

The authors declare that they have no conflict of interest.

Acknowledgements

The authors would like to thank Dr. Zahra Delavarian for scientific consultation and Dr. Mohammad Taghi Shakeri for performing statistical analysis and all of participants for their help in this research.

References

[1] Miller SR, Arnp C. Medical error prevention. Health Studies Institute. Snoqualmie: Health Studies Institute; 2003

[2] Weingart NS, Wilson RM, Gibberd RW, Harrison B. Epidemiology of medical error. The BMJ. 2000; 320(7237):774-7. [DOI:10.1136/bmj.320.7237.774] [PMID] [PMCID]

[3] Zhang J, Patel VL, Johnson TR. Medical error: Is the solution medical or cognitive? Journal of the American Medical Informatics Association. 2002; 9(6):s75-s7. [DOI:10.1197/jamia.M1232] [PMID] [PMCID]

[4] Green B, Tsiroyannis C, Brennan PA. Human factors- recognising and minimising errors in our day to day practice. Oral Diseases. 2016; 22(1):19-22. [DOI:10.1111/odi.12384] [PMID]

[5] Kiani M, Sheikhazadi A. A five-year survey for dental malpractice claims in Tehran, Iran. Journal of Forensic and Legal Medicine. 2009; 16(2):76-82. [DOI:10.1016/j.jflm.2008.08.016] [PMID]

[6] Masoumi G, Kianmehr N, Hajibeigi F. Patient concern about medical- errors in the emergency department. Annals of Emergency Medicine. 2008; 51(4):555. [DOI:10.1016/j.annemergmed.2008.01.249]

[7] Movahhed T, Arab HR, Hashemi S, Mohammadzadeh Z. Evaluation of dental complaints received by the Mashhad medical council from 2001 to 2011 (Persian)]. Iranian Journal of Forensic Medicine. 2016; 22(1):31-7.

[8] Wright S, Ucer C, Speechley S. The perceived frequency and impact of adverse events in dentistry. Faculty Dental Journal. 2017; 9(1):14-9. [DOI:10.1308/rcsfdj.2018.14]

[9] Sanatkhani M, Pakfetrat A, Shirzadeh AR. Oral ulcers among patients referred to oral medicine department of Mashhad Dental School in a period of 6 years (Persian)]. Iranian Journal of Otorhinolaryngology. 2009; 21(56):89-94.

[10] Araghi S, Sharifi R, Ahmadi G, Esfehani M, Rezaei F. The study of prescribing errors among general dentists. Global Journal of Health Science. 2016; 8(4):32-43. [PMID] [PMCID]

[11] Badakhsh H. [Malpractice claims of gynecologists received by Medical Council, Tehran, 1992-96 (Persian)]. Feyz. 2003; 6(4):76-81.

[12] Wadhwa D, Tomar B, Grewal H. Medication errors in dentistry-a cross-sectional study. Delhi Psychiatric Journal. 2014; 17(1):107-2.

[13] Nojoomi M, Kafashi A, Rangiani F. Pediatricians, antibiotic and parents request (Persian)]. Razi Journal of Medical Sciences. 2003; 10(33):133-9.

[14] Ossoff RH, Epstein PD, Wollf AP, Guinta JL. Pemphigus vulgaris, an overlooked disease in young adults. Otolaryngology–Head and Neck Surgery. 1980; 88(2):114-8. [DOI:10.1177/019459988008800202] [PMID]

[15] Obuekwe ON, Akpata O, Ojo MA, Madukwe IU, Osaguona AO. Malignant tumours presenting after dental extraction: A case series. East African Medical Journal. 2005; 82(5):256-9. [DOI:10.4314/eamj.v82i5.9316] [PMID]