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Evaluation of Chronic Orofacial Pain in Dental Patients; A 10 Years Retrospective Study

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ABSTRACT: This retrospective study investigated the data of 427 patients who had suffered from orofacial pain and were referred to Shiraz oral medicine department, Shiraz, Iran. The patients' diagnoses, gender, age, treatment, response to treatment, pain duration, severity of pain and other items were extracted from the medical records in the past 10 years. Most of the patients were females and their mean age was 49.57. The main diagnoses were temporomandibular disease (43.9%) and neuralgic pains (27.8%). Most of the patients had suffered for more than 6 months from the pain onset. 47.2% showed remission or significant improvement and 27% did not respond to treatment. 55.5% of the patients had experienced a severe pain. In this population, a majority of the patients had suffered from temporomandibular disease and neuralgia. The chronic pain was reported to be higher in middle aged females which means that age and gender can be considered as two risk factors.

Keyword: Orofacial pain, Epidemiology, Chronic pain, Dental patients, Clinical observation, Anesthesiology

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INTRODUCTION

According to the definition described by the International Association for the Study of Pain (IASP), pain is a subjectively unpleasant, negative sensory and emotional experience that occurs following the activation of nociceptive stimuli that damage the tissue. Moreover, chronic pain is defined as a pain that persists for more than 3 months (Merskey and Bogduk, 1994). Odontogenic and non-odontogenic facial pain affect up to a quarter of the population. The most common pain type among dental patients is odontogenic pain which is often encountered with less complexity in diagnosis and treatment, although it may rarely mimic a chronic non-odontogenic pain and present in a location far from its origin. Besides, patients may experience pain in their oral and maxillofacial region with non-odontogenic origin. Such persistent pain has been called Oro-Facial Pain (OFP), to be distinguished from the pain raised from common dental diseases (Shephard et al., 2014; Tomoyasu et al., 2014). OFP is referred to the pain in the head, neck, face, and oral cavity. It is one of the prevalent and debilitating morbidities with a complexity in diagnosis, difficulty in treatment, and a tendency to become a chronic pain (Hegarty and Zakrzewska, 2011). Several classification systems have been employed to categorize OFP but none is universally accepted. OFP as outlined by IASP is divided into four main groups: craniofacial pain of musculoskeletal origin (such as temporomandibular disorders), neuralgias, primary headache syndromes, vascular disorders, and pain of psychological origin (Merskey and Bogduk, 1994). Since head and maxillofacial region are in the focus of practice in many medical specialties, a holistic and interdisciplinary approach is needed (Sarlani et al., 2005; Nóbrega et al., 2007). Thereby, consultation or even referral to the appropriate health care provider might be crucial (Zakrzewska and Linskey, 2014). OFP can result from a systemic disease, and more important it may be considered as an early symptom of a serious and life-threatening disorder which indicates an urgent need in timely evaluation and establishing an accurate diagnosis (Burket, 1958). The published reports on accurate prevalence of chronic OFP in general population are scant (Koopman et al., 2009), while well-conducted epidemiological studies would help identify the main etiologic factors of this disease in a certain population. Subsequently, early

diagnosis is crucial to avoid its future complex management when shifted to chronic phase (Zakrzewska and Linskey, 2014). To the best of our knowledge, there have not been any reports on clinical observation and epidemiological studies on Iranian dental patients with chronic OFP however; some studies reported their data in their country. Horst et al. reported prevalence of OFP to be 16.1% in Sanfransisco but this study included acute and dental pain (Horst et al., 2015). A similar study also assessed the prevalence of chronic OFP in dental patients in Japan (Tomoyasu et al., 2014). In Iran only Hashemipour et al. (2014) evaluated the incidence of acute referred OFP caused by tooth pulpitis (Hashemipour and Borna, 2014). Therefore, in this study we evaluated the prevalence and risk factors of OFP in patients referred to department of Oral and Maxillofacial Medicine, Shiraz University, Shiraz, Iran, over a period of 10 years.

MATERIALS AND METHODS

The present study was conducted in the Oral and Maxillofacial Medicine, Department of Shiraz School of Dentistry, Shiraz, Iran, for the past 10 years from October 2005 to October 2015. We retrospectively examined the characteristics of patients who had suffered from OFP. Among all patients referred to our clinic and also reported OFP as a chief complain, 459 patients were selected and their medical records were extracted. 32 incomplete patients' records and undiagnosed subjects were excluded from the study. The data such as patients' gender, age, pain diagnoses, treatments, responses to treatments, duration and severity of pain, and disability were collected from their records.

The diagnoses were made based on the characteristics of pain, X-ray findings, physiological findings, lab tests, nerve block injection, and a drug challenge test (Tomosayu et al., 2014). OFP was classified using criteria of IASP that modified to four categories; Temporo-Mandibular Disorders (TMD), neuralgia, psychological facial pain and others (headache, odontogenic, sinusitis, etc.).

Visual Analogue Scale (VAS) was used as an external criterion to measure the patients' baseline comprehension of their pain severity and to assess the rate of remission over the recall sessions. In this study, the given VAS between1 to 4, 5 to 7, and 8 to 10 were classified as mild, moderate and severe pain respectively. Three steps were defined for response to treatment, based on pain measurement documents that included, step 1: significant improvement, step 2: partial response and step 3: no response.

Ethical rules

This study was approved by the Ethics Committee of Shiraz University of Medical Science, Shiraz, Iran.

Statistical analysis

Continuous and discrete data were described by mean±SD and frequency (percent), respectively. Chi-square test and one-way ANOVA were used to compare quantitative and qualitative variables among groups, respectively. All data were analyzed by SPSS version 17. $P < 0.05$ was considered significant.

RESULTS

Patients

Among all the 2533 patients referred to oral and maxillofacial medicine department, 459 (18.1%) reported OFP as the chief complaint. 24 incomplete and undiagnosed patient records were excluded from the study.

Gender and age

Patients included 293 (68.6%) females and 134 (31.4%) males, ranged from 14 to 90 years old, with the mean age of 49.57±16.82 years. Prevalence of OFP was two times higher among women than men, this propensity particularly was seen in patients with TMD. OFP was also more prevalent in the bracket age of 45-60 years (Table 1).

Diagnoses

The classification of pain and their related percentage is summarized in table 1. The most prevalent non-odontogenic OFP in our patients was TMD which comprised 43.9% of the patients (17.3% with only a joint problem, 6.2% with only muscular pain, 20.4% with a joint and muscle combination problem). The next prevalent pains were respectively neuralgias, pain of psychological origin and primary headache syndromes. Other situations which caused OFP such as sinusitis, odontogenic referral pain included 6.8% of the whole patients.

Duration of pain

The duration from onset of the disease until the time for seeking treatment in most patients was between 6 months and 2 years (31.3%) (Figure 1).

Treatment

Pharmacotherapy was the most common treatment modality that had been used (70.4%). Occlusal appliance therapy was used for 28 patients (6.5%) to alleviate the TMD symptoms and physiotherapy was recommended for

41 patients (9.6%). In addition, for 31 patients (7.2%), a dental procedure was warranted. 36patients (8.4%) were introduced to another health care provider in purpose of more sufficient investigations.

Risk factors

22% of the individual patients blamed an aggressive prolonged dental procedure in onset of their pain. These unexplained and unresolved pains were more often reported after tooth extractions and endodontic treatments. 36.1% of the individuals with OFP asserted psychiatric and emotional conditions, such as depression, anxiety, and chronic distress, on the background of their daily life. 15% of the patients had experienced a stressful unpleasant condition just before their pain interference.

11.5% of the whole patients had been aware of their parafunctional habit, of which, most of them were in TMD category. In addition, in 3.3% of the patients there was some evidence indicating the probable presence of parafunctional habits.

Responses to treatment

The evaluation result of the response to treatment is depicted in figure 2, excluding 103 patients who did not follow their recall sessions or were referred to other specialties. Complete remission or significant improvement was seen in 66.3% of neuralgias, 41.4% of TMDs, and 18.9% of psychogenic pain.

Severity of pain

Most of the patients with OFP reported severe pain (53.8 %). As it is shown in table 2, the most severe pain was experienced by patients with neuralgia, while patients with TMD reported the mildest one in severity.

Disability

23.2% of the patients experienced a pain-related disability in their life, such as a significant concerning about their health status, insomnia, limitation in chewing, and impaction on work and social activities.

DISCUSSION

The prevalence of OFP in patients referred to oral and maxillofacial medicine was 5.61%. This finding was consistent with the prevalence of OFP in general population (7%) (Zakrzewska, 2013). To the best of our knowledge, there is no similar study in Iran and only a few studies have reported clinical aspects of the patients with OFP. Our findings reported that TMD was the most common type of OFP among the patients. 44.8% of this group had both joint and muscle combination problem. This result is in agreement with previous studies (Durham, 2013; Pihut et al., 2014) that reported TMD was the most common OFP after dental and periodontal problems. However in other studies, neuropathic pain (Koopman et al., 2009; Tomoyasuet al., 2014) or cluster headache (Koopmanet al., 2009) demonstrated the higher rate. This discrepancy is likely due to the source of patient collection. For example, in Tomoyasu et al. (2014) study, TMD patients were referred to other special clinic and this type of pain was excluded from their study. Pain perception was different between male and female individuals. Aggarwal et al. (2011) also showed that various types of OFP are more common in women than in men that consists with our findings. It seems that women are mostly referred to office for control of pain. Moreover, Tomoyasu et al. (2014) have also the same predominance in their sample of study. In the present study, the prevalence of OFP in people with an age range of 45-60 (with a mean age of 50) is higher than the other ages. It seems that age was a risk factor for OFP; hence, it seems that this group of people would need better evaluation and management. Our results, similar to previous studies (Kumar and Brennan, 2013; Tomoyasu et al., 2014), indicated that TMD had a tendency to occur in adults but neuralgia has been reported more frequently in older ages. This is also in line with findings of other studies that have shown that the incidence of chronic OFP increases with age (Pihut et al., 2014). Thus in this group of patients, it is necessary to pay attention to OFP with non-odontogenic origin that mimics dental pain. Chronic OFP is defined as a pain that persists more than three months and most of non-odontogenic OFPs are chronic (Merskey and Bogduk, 1994; Allerbring and Haegerstam, 2004). In this study, more than half of our patients had reported pain for over 6 months before referring to our department. This is in agreement with Tomoyasu et al. (2014) study, but different researches have shown various results (Schnurr and Brooke, 1992 and Siqueira et al., 2009). The duration of pain in most of the studies was reported longer than three months and chronic pain resulted in several complications in diagnosis, treatment and psychological status. Therefore, a quick and accurate diagnosis or timely referral of complicated OFP to specialists is highly recommended. In our study, patients with neuropathic pain had the shortest period of pain, less than two months. In contrast, myofascial pain had the longest duration (more than 2 years) among these types of OFP. This delayed diagnosis might be due to the fact that diagnoses of myofascial pains are more difficult than

neuropathic pain for general practitioners than the relevant specialists. The treatment plan for OFP comprises pharmacological and non-pharmacological approaches. Pharmacological agents are the mainstay of treatment and the effective choice in symptomatically managing of OFP. Depending on the type of pain, pharmacotherapy can be used perse or in combination with other treatments (Hegarty and Zakrzewska, 2011).

In our study, most of the patients (70.4%) received medication. Muscle relaxants, Non-Steroid Anti-Inflammatory Drugs (NSAIDs), anticonvulsants and antidepressants were the most common type of medication that was prescribed for our patients. This is similar with other studies (Kroenke et al., 2009; Ganzberg, 2010), but some differences in the sub types of drugs were seen . In addition, combination therapy with laser, physiotherapy and occlusal appliance were used respectively for refractory Trigeminal Neuralgia (TN) and TMD patients. Previous studies recommended splint therapy for myofascial pain as an effective and non-invasive method (Bush, 1984). Referral for special psychotherapy was recommended in some of the patients with psychogenic pain who did not respond to treatment. Regarding the response to treatments, two-thirds of patients showed remission or significant improvement. This means that most of the patients with OFP in who completed the course of treatment and follow-up period were able to attain improvement. This result was observed if general practitioners or other specialists could correctly diagnose the OFP, most of the patients would not suffer from these chronic pains. Our finding was different from Tomoyasu et al. (2014) results, because in their study odontogenic pain was also included and it was easily treated (85%) improvement after treatment. In the current study particularly, in TN, TMD and psychogenic pain, the rate of remission or significant improvement was 66.3%, 41.4% and 18.9% respectively.

Neuralgia was the highest rate because most of the patients relieved after medication therapy. This rate is similar to the results yielded by Tomoyasu et al. (67%) but for TMD (59.6%) and psychogenic pain (60.5%) the rate of response was different (Tomoyasu et al., 2014). This dissimilarity rises from the fact that there is still no definitive treatment recommended for these types of pains and various methods are employed for their management in different instances, whilst, for TN, carbamazepine is the main choice of treatment. Our study was limited in number of recruited samples in each category of OFP as well as the information collected from psychological status or quality of life in outpatients. Therefore, we were not able to analyze the data for each diagnosis due to this limitation. Moreover, the evaluation of responses to treatment and severity of pain was performed based on VAS that was registered in medical files. Different other methods can be also used to evaluate other pain factors such as pain intensity, functional impact and also patient satisfaction (Gordon et al., 2002), which can be considered in future studies.

CONCLUSION

In conclusion, we enrolled a retrospective study on patients with OFP who were referred to department of oral medicine, Shiraz, Iran, over a period of 10 years. The majority of patients had suffered from TMD and neuralgia. The chronic pain was more reported in females with a mean age of 49.5 years old (range 45-60) which means that age and gender can be considered as two risk-factors. The duration of pain was more than 6 months in half of patients in whom the dental origin had a very small share in etiology. It seems that dental clinicians should refer the undiagnosed patients for further evaluation to relevant medical settings.

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Conflicts of interest

The authors state that there is no conflict of interest.

Author's contribution

FR designed the study and prepared the field condition and gave valuable advices and support in the conduct of the study. FR and SR contributed in the data analysis and revised the manuscript. SR performed the fieldwork and collected the data. All authors have read and approved the final manuscript

REFERENCES

Aggarwal VR, Lovell K, Peters S, Javidi H, Joughin A and Goldthorpe J. (2011). Psychosocial interventions for the management of chronic orofacial pain. Cochrane Database Systemic Review, 9(11): CD008456.

Allerbring M and Haegerstam G (2004). Chronic idiopathic orofacial pain. A long-term follow-up study. Acta Odontologica, 62(2): 66-69.

Burket L W (1958). Oral medicine: diagnosis and treatment. The American Journal of the Medical Sciences, 235(2): 238.

Bush F M (1984). Occlusal therapy in the management of chronic orofacial pain. Anesthesia progress, 31(1): 10.

Durham J (2013). Oral surgery: part 3. Temporomandibular disorders. British Dental Journal, 215(7): 331-337.

Ganzberg S (2010). Pain management part II: pharmacologic management of chronic orofacial pain. Anesthesia progress, 57(3): 114-119.

Gordon D B, Pellino TA, Miaskowski C, McNeill JA, Paice JA, Laferriere D, et al. (2002). A 10-year review of quality improvement monitoring in pain management: recommendations for standardized outcome measures. Pain Management Nursing, 3(4): 116-130.

Hashemipour MA and Borna R (2014). Incidence and characteristics of acute referred orofacial pain caused by a posterior single tooth pulpitis in an Iranian population. Pain Practice,14(2): 151-7.

Hegarty A M and Zakrzewska J (2011). Differential diagnosis for orofacial pain, including sinusitis, TMD, trigeminal neuralgia. Dental Update, 38(6): 396-400.

Horst OV, Cunha-Cruz J, Zhou L, Manning W, Mancl L and DeRouen TA (2015). Prevalence of pain in the orofacial regions in patients visiting general dentists in the Northwest Practice-based research Collaborative in Evidence-based dentistry research network. Journal of American Dental Association, 146(10): 721-8.e3.

Koopman J S, Dieleman JP, Huygen FJ, de Mos M, Martin CG and Sturkenboom MC, et al. (2009). Incidence of facial pain in the general population. Pain , 147(1): 122-127.

Kroenke K, Krebs EE and Bair MJ (2009). Pharmacotherapy of chronic pain: a synthesis of recommendations from systematic reviews. General hospital psychiatry, 31(3): 206-219.

Kumar A and Brennan M T (2013). Differential diagnosis of orofacial pain and temporomandibular disorder. Dental Clinics of North America, 57(3): 419-428.

Merskey H and Bogduk N (1994). Classification of chronic pain, IASP Task Force on Taxonomy. Seattle, WA: International Association for the Study of Pain Press (Also available online at www. iasp-painorg).

Nóbrega JCM, Siqueira SR, Siqueira JD and Teixeira MJ (2007). Diferential diagnosis in atypical facial pain: a clinical study. Arquivos de Neuro-Psiquiatria, 65(2A): 256-261.

Pihut M, Szuta M, Ferendiuk E and Zeńczak-Więckiewicz D (2014). "Differential Diagnostics of Pain in the Course of Trigeminal Neuralgia and Temporomandibular Joint Dysfunction," BioMed Research International, 2014:120-127.

Sarlani E, Balciunas BA and Grace EG (2005). Orofacial pain—part I: assessment and management of musculoskeletal and neuropathic causes. AACN Advanced Critical Care, 16(3): 333-346.

Schnurr R F and Brooke R I (1992). Atypical odontalgia: Update and comment on long-term folow-up. Oral surgery, oral medicine, oral pathology, 73(4): 445-448.

Shephard MK, Macgregor EA and Zakrzewska JM (2014). Orofacial pain: a guide for the headache physician. Headache: The Journal of Head and Face Pain, 54(1): 22-39.

Siqueira S R, Teixeira MJ, José TT and Siqueira JT (2009). Clinical characteristics of patients with trigeminal neuralgia referred to neurosurgery. European journal of dentistry, 3(3): 207.

Tomoyasu Y, Higuchi H, Mori M, Takaya K, Honda Y and YamaneA, et al. (2014). Chronic Orofacial Pain in Dental Patients: Retrospective Investigation over 12 years. Acta Medica Okayama, 68(5): 269-275.

Zakrzewska J M (2013). Multi-dimensionality of chronic pain of the oral cavity and face. Journal of Headache Pain, 14(1): 37.

Zakrzewska J M and Linskey M E (2014). Trigeminal neuralgia. British Medical Journal, 348: 474.