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ORIGINAL ARTICLE

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The Incidence and Management of Local Facial Myalgia in Covid-19 Patients of Babylon Province Patients

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Abstract

Background: facial pain is of clinical importance that could complicate other conditions like COVID-19 which still under investigation and research.

Objective: to highlight the incidence and management of COVID-19 associated local facial myalgia in Babylon province patients.

Subjects, Materials and Methods: An exploratory study include 87 patients of both gender having history of mild-moderate COVID-19 infection. Incidence of local myalgia, location, duration and pain characteristics reviewed in addition to history of drugs used for management and other systemic diseases.

Results: there were significant defferences between male and female. (73.3%) of patients were mildly infected with local facial myalgia during the period of infection that lasted 5–14 days. 74.7% of patients described pain in masseter, frontal and occipital muscles during infection that subsided at the end of infection period. The characteristic of pain was moderate numbing and burning pain that managed with paracetamol 1000 mg.

Conclusion: Focal facial myalgia significantly associated with mild–moderate Covid-19 infected patients. Mild numbing and burning pain in frontal, masseter and occipital muscles reliefed with Paracetamol during infection period.

Keywords: Maylgia, COVID-19, MFPDs, SARS-CoV-2

1. Introduction

The Facial pain is one of the most important neurological complaints together with headache pain, and both or one of back and abdominal pain. In most of the cases, the etiology can be detected from a detailed history and clinical and laberatory examination [1].

Localization of the painful site "where the pain originates is frequently difficult as there is considerable variation in, and overlapping of, sensory nerve distribution in the face. Referred pain is common in the head and neck, especially in the region of the ear" [2].

The Pain may arise from the ear itself or areas around, or be referred from an ulceration in the base of the tongue "via the auricular temporal branch of the mandibular nerve or from a degenerative lesion of the upper cervical vertebrae (via the greater or lesser occipital or great auricular nerves [cervical nerves C2 and C3]" [3, 4]. If the pain is unilateral, where the pain is experienced; the lesion must be on the side or, if the pain is bilateral, it is likely to be due to systematic diseases "e.g chronic meningitis" or psychogenic status in origin. The acute maxillary sinusitis may located as painful sensation in the region of the upper premolar and molar teeth, which may also be tender to percussion. Facial migraine and trigeminal neuralgia;

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which another causes of pain that may present with prodromal symptoms then followed by pain in the peri-orbital area, which may radiate to the mandible and to the cheek [5–8].

Myofascial pain dysfunction syndrome (MFPS), also “known as chronic myofascial pain (CMP)”, is “a syndrome of chronic pain in multiple myofascial trigger points ("knots") and fascial (connective tissue) constrictions”. It can appear in any part of human body. Symptoms of a myofascial trigger points include “focal point tenderness, reproduction of pain upon trigger point palpation, hardening of the muscle upon trigger point palpation, pseudo-weakness of the involved muscle, referred pain, and limited range of motion following approximately 5 seconds of sustained trigger point pressure “ [9].

The Temporomandibular disorders are consider a subgroup of craniofacial pain or muscloskeletal problems that involve both or one of the TMJ, masticatory muscles, then associated with head and neck musculoskeletal structures. Involved patients with temporomandibular disorders most commonly presented with pain, limited or asymmetric motion of mandibular bone, and also TMJ sounds [10]. Both the pain or discomfort are often localized to the TMJ, jaw, then to the muscles of mastication. The “Common associated symptoms include ear pain and stuffiness, tinnitus, dizziness, neck pain, and headache. In some cases, the onset is acute and symptoms are mild and self-limiting. In other patients, a chronic temporomandibular disorder develops, with persistent pain and physical, behavioral, psychological, and psychosocial symptoms similar to those of patients with chronic pain syndromes in other areas of the body” (e.g., chronic headache, arthritis, low back pain, fibromyalgia, then finally chronic regional pain syndrome) all requiring a coordinated the interdisciplinary diagnostic and then treatment approach [10, 11].

The coronavirus disease was identified in 2019, “SARS-CoV-2”, has caused a respiratory illness of pandemic condition, called COVID-19. This virus is spread via droplets and virus particles released into the air environment when an infected person breathes, laughs, talks, sings, coughs, then finally sneezes. The viral symptoms show up within two to fourteen days of close or direct exposure to the virus. An infected person with the coronavirus is contagious to others person for up to two days before symptoms of disease appear, and they also remain contagious to others for ten to twenty days, depending upon their severity of their illness and also on immune system of the host [12].

The “COVID-19 symptoms include cough, fever or chills,shortness of breath or difficulty breathing,muscle or body aches sore throat, loss of taste or smell, diarrhea, headache, new fatigue, nausea or vomiting and congestion or runny nose”. During the COVID-19 outbreak or disease flaring, the involved patients suffering signs and experiencing various sorts of discomfort must not neglect. However, the complications and consequences of COVID-19 are still unclear and not confirmed due to short history of pandemic [13].

Studies show neuropathic pain post COVID-19 manifested as headache and myalgia [14]. Musculoskeletal myalgia manifested during COVID-19 infection period could be focal myalgia or in form of arthralgia worsen the symptoms of infection and found increased with infection severity [15]. Unfortunately, COVID -19 associated myalgia doesnot attract much attention like other symptoms especially for oncet,duration and mechanism behind [16].

Accordingly, local facial myalgia during and after COVID-19 infection and its post infection duration require different types of studies in variable levels to relate and investigate the possible mechanisms aim of this pilot study was behind.

2. Subjects, materials and methods

The current study was a retrospective cross sectional study. (87) patients were participated in this study which conducted at the College of Dentistry, University of Babylon including males and females of age ranged from 18 to 80 years. The study conducted during a period of two months (September–November) according to the ethical committee approval.

2.1. Inclusion and exclusion criteria

The inclusion criteria were history of infection of covid 19 with complete information about symptoms and treatment including myalgia at the period of infection and after 6 months. In addition to immunization history and recurrent infection.

On the other hand, patients who did not accept to give a full history of their infection or complete description of their symptoms and patients who took medication that treats persistent pain were excluded.

2.2. Clinical outcome

The following outcome were evaluated: incidence and prevalence of infection, the severity of the infection (mild, moderate, and severe). The type of pain (sharp, dull, and numbing tingling pain) the affected muscles (frontal, occpital, masseter, temporal, lateral

and medial petrygoid) and lastly, type of drugs used for pain management.

All Data were collected according to case shees that made for this project and approved by oral medicine department committee.

3. Sample and statistical analysis

The following study was exploratory study to evaluate the incidence of facial myalgia to perform large study including all patients visiting dental clinics in our institution. Accordingly, the sample size was determined for oral medicine department patients and for short duration in relation to the total number of patients visited the department clinics during this period.

Data were analyzed by SPSS software 22 version. Non parametric data analyzed with chi square test to verify their significance while continuous measures analyzed with independent t-test. The level of significance were $p \leq 0.05$.

4. Results

The current study included 87 patients of (35.6%) male and (64.4%) female previously infected with COVID-19. There were no significant differences related to age ($p \geq 0.05$) as shown in Table 1. While there were significant defferences between male and female.

Most of the patients were mildly infected with no need to hospital admission (73.3%) and reported orofacial myalgia during the period of infection that lasted 5–7 days. 74.7% of patients described pain in masseter, frontal and occipital muscles during infection that subsided at the end of infection period.

The characteristic of pain was moderate numbing and burning pain with radicular pattern to the adjacent anatomical aria that managed with paracetamol 1000 mg.

The study found that 26.4% of patients had history of migraine, 3.4% of patients were diabetic and 70.1% of patients had no history of chronic systemic diseases.

70.1% of patients were vaccinated while 29.9% not received any type of vaccine. 30% of patients reported recurrent infection after completion of vaccine regimen.

Table 1. Outcome of patients included in the study.

Criteria	Patients' number (33)	P value
Age	36.21 ± 14.1	0.99
Gender	Male 31(35.6%) Female 56(64.4%)	0.036*
Infection grade	Mild 64(73.3%) Moderate 23(26.7%)	0.002*
Myalgia position	None 4(4.6%) Frontal and occipital muscle 18(20.7%) masseter, frontal and 65(74.7) occipital muscles	0.001*
Vaccine	Vaccinated 61(70.1%) Nonvaccinated 26(29.9%)	0.00*

*$p \leq 0.05$

Discussion

According to the current research result,it found that 64.4 % of patient infected with COVID-19 was female while male was 35.6%. Some studies and diagnosis laboratory tests have not agree with the existence of this difference while they found no difference between males and female [17, 18].

The results revealed that most patients were mildly infected without requiring hospitalization (73.3%) and reported orofacial myalgia during the 5–7 day infection period. 74.7% of patients described pain in the frontal, masseter, and occipital muscles during infection that subsided at the end of the infection period. In other studies, they found that half the numbers of individuals presented with pre-existing musculoskeletal pain experienced a worsening of their symptoms after COVID-19 [19, 20] while in our study pain ended when the disease symptoms disappeared.

A study by Arnold *et al.*, 2021 [21] correlated the presence of myalgia at hospital admission with a pre-existing history of musculoskeletal pain, myalgia in the acute phase was associated with musculoskeletal pain as a long-term sequela after COVID-19. Conversely the current finding reported no persistent of myalgia post COVID infection in all patients however, this finding may be affected with sample size,type of myalgia reported and severity of infection in this study.

Severity of myalgia in the following study increased in patients having history of migraine though, there was no significance. Previous studies found increased in headacke severity in COVID-19 patients along with migraine [22] explained as COVID-19 represents a trigger for migraine symptoms. Furthermore, relation of facial myalgia in COVID-19 patients and migraine still unclear and require further studies to perform.

Facial myalgia in the current study characterized with numbness and burning sensation in most of cases with radicular pattern to the adjacent anatomical area. This finding prove the neurological impact of COVID-19 infection and agree with Whittaker *et al.*, 2020 [23] review results that found different neurological manifestation during COVID-19 infection, nevertheless, most of these manifistations were for

hospitalized patients. Its important to highlight that most of studies reported myalgia in general while in this study, we focused on facial myalgia. A study by Lechien JR *et al.*, 2020 [24] found anosmia and gustatory alteration with facial myalgia demonstrated in mild–moderate COVID-19 infected European patients that goes with our study finding except that we didn't investigate the anosmia or gustatory alteration.

Myalgia in this study reliefed with paracetamol 1000 mg during infection and not required additional potent analgesics which reflects mild neurological involvement of SARS-CoV-2.

According to the results, it found that 60.1% of patients received the COVID-19 vaccine, while 39.9% did not receive the vaccine. Recurring infection after completing the vaccination system reported in 30% of patients. Yet, we did not find enough studies proving the validity of this percentage, except a study found patients who did not receive the vaccine had a high percentage of recurrence of infection compared to people who were vaccinated [25].

5. Conclusion

Focal facial myalgia significantly associated with mild –moderate Covid-19 infected patients. Numbing and burning pain in frontal, masseter and occipital muscles manifested in most of patients that reliefed with Paracetamol during infection period and subsided when infection symptoms disapeared

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