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IMPACT ON PRE-EXISTING AND CHARACTERISTICS OF CORONAVIRUS DISEASE AND HEADACHE: A CROSS-SECTIONAL STUDY

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Abstract:

Introduction: *The World Health Organization (WHO) identified the outbreak of the coronavirus (COVID-19) as a global pandemic in March 2020.* ***Objectives:*** *The main objective of the study is to analyse the impact on pre-existing and characteristics of coronavirus disease and headache.* ***Material and methods:*** *This cross-sectional study was conducted in Punjab Health Department during 2019 to 2020. Adult patients aged 18–65 years of both gender who were reviewed in the headache clinic within 3 months after the onset of their COVID-19. Infection with COVID-19 was confirmed by reverse transcription polymerase chain reaction (RT-PCR) technique from material collected by nasal and oropharynx swab.* ***Results:*** *A total of 121 patients with headache after recovery from COVID-19 were reviewed. Table 1 presents the Clinical and demographic characteristics of the cohort. Eighty-seven patients aged 40 years or younger. 89 (73.6%) reported primary headache disorders prior to COVID-19, 78 (64.5%) experienced migraine and 11 (9.1%) diagnosed as tension-type head- ache. 32 (26.4%) reported de novo headache post COVID-19.* ***Conclusion:*** *It is concluded that COVID-19 pandemic has a characteristic effect on the course of headaches in individuals with and without pre-existing primary headache disorders.*

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INTRODUCTION:

The World Health Organization (WHO) identified the outbreak of the coronavirus (COVID-19) as a global pandemic in March 2020 [1]. Worldwide, health authorities of each country mandated that healthcare workers wear personal protective equipment (PPE) while dealing with suspected or confirmed COVID-19 cases. The Saudi Ministry of Health (MOH) reinforced the importance of standard precautions using the required PPE during this time [2]. The PPE included close-fitting N95 face masks, protective eyewear (goggles, face shields, or face masks), gowns, gloves, or/and the use of powered air-purifying respirators (PAPR) [3]. However, many frontline healthcare workers found the PPE uncomfortable and cumbersome, especially when it was worn for a prolonged period of time [4]. Headache was one type of physical discomfort experienced by many frontline healthcare workers due to wearing PPE. Headache may be produced by the sustained compression of the peri-cranial soft tissues by wearing tight bands or straps around the head. The PPE face shield, for instance, is attached tightly around the head.

Headache attributed to systemic viral infection is included in the International Classification of Headache Disorders third edition (ICHD-3) [6] and, although commonly reported [7], specific data are lacking. It is estimated that with the COVID-19 pandemic there has been a five-fold increase in the incidence of headache in the affected regions [8]. The prevalence of headache was calculated at 10.9% (8.6–13.5%) in a meta-analysis of 6486 patients included in 21 studies, in which the prevalence ranged from 3.5–34% [9]. In most studies, the prevalence of headache in patients with COVID-19 is around 12% [10]. Little information is known about the characteristics of these headaches. During the pandemic, we noticed frequent clinical visits to our headache clinic with complaints of worsening of previous headache or new onset Headache following COVID-19.

Objectives

The main objective of the study is to analyse the impact on pre-existing and characteristics of coronavirus disease and headache.

MATERIAL AND METHODS:

This cross sectional study was conducted in Punjab Health Department during 2019 to 2020. Adult patients aged 18–65 years of both gender who were reviewed in the headache clinic within 3 months after the onset of their COVID-19. Infection with COVID-19 was confirmed by reverse transcription polymerase chain reaction (RT-PCR) technique from material collected by nasal and oropharynx swab. Data were collected with a questionnaire. The questionnaire was designed to report demographic and clinical data, including age, gender, attack frequency (times/month), and attack duration (hours), number of analgesics days use/ month and their scores on the visual analogue scale (VAS).

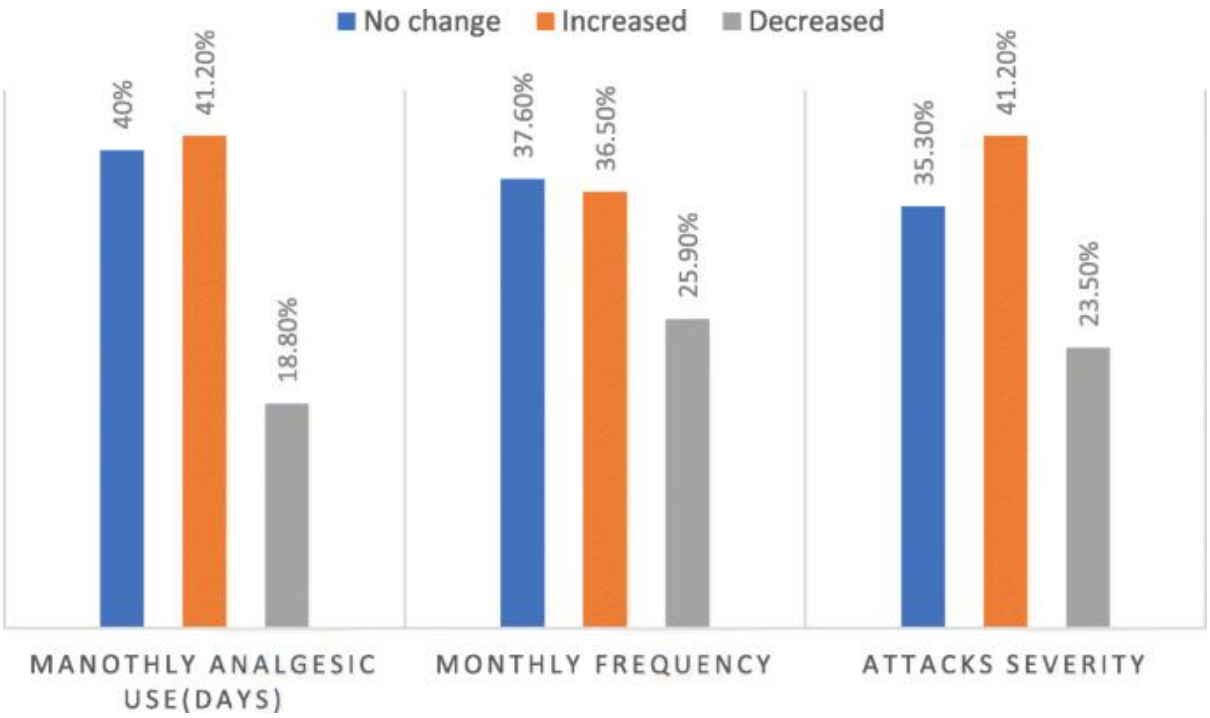
The statistical analyses were performed using SPSS Statistics Software version 26.0 (IBM Corporation, Armonk, NY, USA). Descriptive data are shown as number (percentage) or mean ± standard deviation for continuous variables, whereas categorical ones were expressed as proportions and percentages.

RESULTS:

A total of 121 patients with headache after recovery from COVID-19 were reviewed. Table 1 presents the Clinical and demographic characteristics of the cohort. Eighty-seven patients aged 40 years or younger. 89 (73.6%) reported primary headache disorders prior to COVID-19, 78 (64.5%) experienced migraine and 11 (9.1%) diagnosed as tension-type head- ache. 32 (26.4%) reported de novo headache post COVID-19.

Table 01: Analysis of headache in COVID-19 patients

Variables	Patient with Migraine		*p*	Patients with TTH		*p*
	Before infection	After infection		Before infection	After infection	
Attack severity						
Mean ± SD	7.235 ± 2.05	7.42 ± 2.36	0.501	5.556 ± 1.86	7 ± 2.25	0.033*
Headache days per month						
Means± SD	8.18 ± 7.36	8.55 ± 7.17	0.584	7 ± 6.29	12.72 ± 7.96	0.006*
Analgesic use days per month						
Means± SD	2.31 ± 1.65	3.05 ± 2.09	0.002*	2.28 ± 1.74	3.06 ± 2.44	0.177



DISCUSSION:

The present study showed that COVID-19 has a significant negative impact on patients with pre-existing primary headache disorder either migraine or tension type headache. De novo primary headache is frequent post COVID-19. Occurrence of headache during the symptomatic phase of COVID-19 can be consider as headache attributed to systemic viral infection [6].

The de novo headache post COVID-19 has migraineurs features like i.e., throbbing in nature with associated symptoms like photophobia and phonophobia. Migraine features of de novo headache post COVID-19 could be hypothesised that there is a meningeal peripheral senstisation and an activation of the trigemino- vascular system underlying this headache type [11].

Within 3 months after the COVID-19, significant number of patients in this cohort with primary headache had worsening of their headache in form of increased headache attack severity and/ or frequency with subsequent increased analgesics use. Stress during COVID-19 could be a trigger of migraine attacks and may have a role in this worsening. In the other hand worsening of primary headaches could be explained by viral diseases [12].

Long COVID was defined in previous study as the set of symptoms that accompanies the patient even for months after recovery from COVID-19. These symptoms include persistent headache, y fatigue, moderate breathlessness, foggy head, and psychiatric disorders [13]. In our cohort, headache resolved in most of patients within 1 month after COVID-19 and in resolved in the others after 3 months. Persistent headache for at least 6 months, both as a new onset or worsening/ chronicization of a pre-existing migraine should not be underestimated.

CONCLUSION:

It is concluded that COVID-19 pandemic has a characteristic effect on the course of headaches in individuals with and without pre-existing primary headache disorders. We concluded that post-COVID-19 headaches are significantly more intense and frequent with the migraine-type being the most common. For an accurate diagnosis and disease spread prevention.

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