

COVID-19 Infection in Patient with Sudden Onset Anosmia in the Current Pandemic: Experience in Private Otolaryngology Practice

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Abstract

Background: The novel human corona virus disease (COVID-19) is the fifth documented pandemic in history since the 1918 flu pandemic. Along with other clinical features, anosmia has been reported as a prime symptom in COVID-19 positive patients. The aim is to determine the prevalence of COVID-19 infection in patients who came with a history of the sudden development of anosmia.

Methodology: This study was done in a consultation center, Uttara Crescent Hospital, a privately owned hospital in Dhaka, Bangladesh. Data were collected retrospectively from hospital records in between 01 April 2020 and 15 October 2020. Patients came with history of fever, sore throat, cough, loss of smell and altered taste, proper history were taken and examined. All the patients with suspected COVID-19 infection were sent for RT-PCR testing. Only 19 patients were included in the study with the history of anosmia from the recorded data.

Results: Among the 19 patients male were 13 and female 06. The age of the patients was in between 16 and 63 years. COVID-19 infection was confirmed in 13 patients (68.42%) in RT-PCR testing among the 19 cases.

Conclusion: Loss of smell is a significant symptom of COVID-19 infection, along with other symptoms. In the current study, the prevalence of COVID-19 infection is 68.42% in patients with history of sudden onset anosmia in Dhaka, Bangladesh. It does not reflect the country's actual picture because of a minimal number of study populations. Further study is needed find out prevalence in Bangladesh.

Keyword: COVID-19; Anosmia; SARS-CoV-2; Corona Virus

Introduction

The novel human corona virus disease COVID-19 is the fifth documented pandemic in history since the 1918 flu pandemic [1]. Corona virus disease 2019 (COVID-19) is a highly contagious disease which affect respiratory and vascular system [2]. The disease is caused by severe acute respiratory syndrome corona virus 2 (SARS-CoV-2) [3] is a novel corona virus.

The disease was first identified in December 2019 in Wuhan, China and the virus first isolated from three people with pneu-

monia connected to the cluster of acute respiratory illness cases in Wuhan [4]. Since then the whole world is infected subsequently. The Chinese authorities gave the name novel corona virus (nCoV) [5]. On 11 February 2020 WHO announced the name of the disease as Corona virus disease-19 (COVID-19) and the name of virus as Severe acute respiratory syndrome corona virus 2 (SARS-CoV-2) [5].

Fever, cough, fatigue, shortness of breath or breathing difficulties and loss of smell and taste are the most common symptoms [6]. Incubation period is ranging from one to fourteen days [7]. Mode

of spread of the disease is thought to spread through respiratory route by both droplet and aerosol after infected person cough, sneezes, talks or breathes in close contact [8].

Olfactory dysfunction following the upper respiratory tract infections may be allergic, bacterial or viral are common. Post-viral anosmia has been reported in previous studies [9,10]. Nasal mucosa damage and nervous system involvement are found as the probable causes, however, the exact pathogenesis remains unclear [11,12].

Mao., *et al.* initially reported on neurological symptoms of COVID-19 in February 2020 [13]. Since then different authors have reported that a recent increase in patients presenting with anosmia in COVID-19 pandemic [14]. New-onset olfactory or gustatory dysfunction in conjunction with other well-established symptoms of COVID-19 infection [14] has been reported by different authors. Because of increasing awareness olfactory and taste dysfunction as potential early symptoms of COVID-19 infection CDC recently added “new loss of taste or smell” to its list of symptoms that may appear 2 to 14 days after exposure to COVID-19 [15].

The mucosa of nasal and paranasal sinus cavities is increasingly recognized for COVID-19 symptomatology and transmission [16]. It may be a major site of infection by SARS-CoV-2, where susceptibility of genes required for infection are expressed at high levels and may be modulated by environmental and host factors [16].

Kevin Jiang in 24 July 2020 published a paper in Harvard medical school webpage in research section the cause of loss of smell [17]. Renowned researchers led by neuroscientists identified that olfactory sensory neurons do not express the gene that encodes the ACE2 receptor protein¹⁷, which SARS-CoV-2 uses to enter human cells instead ACE2 is expressed in cells that provide metabolic and structural support to olfactory sensory neurons, as well as stem cells and blood vessel cells. The findings indicate that the novel corona virus changes the sense of smell in patients not by directly infecting neurons but by affecting the function of supporting cells and the loss of smell is temporary [17].

In my private practice patients used to come with impairment of smell with different causes. But during this pandemic period history is little different. So far in my knowledge I did not find any article on prevalence of COVID-19 infection in patients with anosmia in Bangladesh perspective. This study was conducted in a very small number of populations my private practice which does not reflect the real scenario of COVID-19 infected in patients with history of

anosmia of the country.

Material and Method

This study was done in a consultation center, Uttara Crescent Hospital, a privately owned hospital in Dhaka, Bangladesh. Data were collected retrospectively from hospital records in between 01 April 2020 and 15 October 2020. I continued my private Otolaryngology practice since the COVID-19 infection identified in Bangladesh on 8 March 2020 except 10 days during lockdown in Dhaka. Patients came with history of fever, sore throat, cough, loss of smell and altered taste, proper history were taken and examined. All the patients with suspected COVID-19 infection were sent for RT-PCR testing. Only 19 patients were included in the study with the history of anosmia from the recorded data and analyzed.

Results

Total number of patients in the study population was 19, male 13 and female 06. Lowest age was 16 year and highest 63 years. Among the 19 patients 13 (68.42%) were confirmed as COVID-19 infection by RT-PCR test of which male patients were 11 (57.89%) and female 02 (10.53%). Most of the patients had other common symptoms along with anosmia. Single history of anosmia was found in two patients only.

Age	Total	Percentage
15 - 35 Years	08	42.11%
36 - 65 Years	11	57.89%

Table 1: Demography (age).

Sex	Total	Percentage
Male	13	68.42%
Female	06	31.58%

Table 2: Demography (sex).

Symptoms	Male	Female	Total	COVID-19 Positive (SARS-CoV-2)
Anosmia with altered taste	03	02	05	03
Anosmia with other symptoms	08	04	12	09
Anosmia only	02	-	02	01
Total	13	06	19	13 (68.42%)

Table 3: Patients clinical features and diagnosed COVID-19 infection.

Discussion

COVID-19 is the fifth documented pandemic in history [1]. A current COVID-19 infected case in Bangladesh is 417,475 on 07/11/2020 and deaths 6036 as per report of DGHS.

Fever, cough, fatigue, shortness of breath or breathing difficulties and loss of smell and altered taste are the most common symptoms [6]. Post-viral anosmia has been reported in different studies [9,10].

Mao, *et al* initially reported on neurological symptoms of COVID-19 in February 2020 [13]. Since then different authors have reported that a recent increase in patients presenting with anosmia in COVID-19 pandemic [14]. A recent study by Sungnak, *et al*. [18] suggested that nasal epithelial cells show a high angiotensin converting 2 (ACE2) expression in SARS-CoV-2 infection, and thus this may allowing wide viral entry. Thus anosmia can be a possible atypical feature of COVID-19 patients.

In the current study male: female ratio is 2.1:1 and lowest and highest age of patients were 16 years and 63 years respectively. Among the 19 patients with history of anosmia 13 patients (68.42%) confirmed as COVID-19 infection on RT-PCR testing, that is prevalence of COVID-19 infection is 68.42% in Dhaka, Bangladesh. Prasun Mishra, *et al*. [19] in a study found prevalence of anosmia 14.8% in COVID-19 patients. Prevalence of anosmia in other study showed by Klopfenstein, *et al*. [20] 47%, Lechien, *et al*. [21] 86% and Seyed Hamid Reza Bagheri, *et al*. [12] 7.3%. Studies in different COVID hospital in Dhaka city prevalence of anosmia found by Quazi Tarikul Islam, *et al*. [22] is 19.5% and by Syed Ghulam Mogni Mowla, *et al*. [23] 10.10% but so far I studied I did not find study on prevalence of COVID-19 infection in the patients with history of loss of smell attended the hospital in Bangladesh.

Conclusion

Loss of smell is the significant symptom of COVID-19 infection along with other symptoms. In the current study prevalence of COVID-19 infection is 68.42% in patients with history of sudden onset anosmia in Dhaka, Bangladesh. It does not reflect the actual picture of the country because of a very small number of study populations. So far I studied I did not find any article on the prevalence of COVID-19 infection in patients with anosmia. Further study is needed find out the prevalence in Bangladesh.

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