

Original Article

A Cross Sectional Study of Prevalence of COVID-19 and ENT Manifestations among Health Care Workers in Our Centre

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Background : Health Care Workers are among the frontline COVID warriors who have been fighting all odds in serving their patients at the cost of their lives. Bangalore has been one among the hot cities in news during this pandemic and our centre, being one of the busiest working hospitals right in the middle of the city, we hereby throw limelight to the Health Care Workers of our centre who have been fighting over COVID-19 with all might and courage. This study was done to know the prevalence of COVID-19 and its ENT manifestations among Health Care Workers in our centre.

Materials and Methods : A cross sectional study was done in KIMS Hospital, Bangalore, targetting all Health Care Workers of our centre, divided into 3 groups. Prevalence of ENT manifestations was studied.

Results : In our study, majority who tested positive for COVID-19 were Doctors (67.6%) followed by staff nurse (27.9%) and auxiliary HCW (4.5%). One fourth of the study subjects had anosmia as the most common ENT manifestation followed by nasal obstruction (24.3%), cough and loss of taste (19.8% each).

Conclusion : With inadequate precautions being taken with the mutating virus in air, causing a surge in cases, the health care workers are the most vulnerable group to acquire the deadly infection, during both the waves of the pandemic. We hereby, stress on this, with the help of our study, done during the first wave, targeting our Health Care Workers.

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Key words : COVID-19, ENT presentations, Health Care Workers.

As quoted by Dr Jeckros Adhanom, WHO director General, COVID-19 pandemic has reminded all of us the role Health Care Workers play to relieve suffering and save lives. No country, hospital or clinic can keep its patients safe unless it keeps its Health Care Workers safe”

This pandemic has highlighted the risk of burnout among Health Care Providers and the extent to which protecting health workers is key to ensuring a functioning Health and Economic system.

As of April, 2020, WHO reported a daily monitoring report of about 22,073 Health Care Workers across 52 countries infected by COVID-19 of which the number was estimated to be probably under represented. Preliminary results have suggested health care workers to have got infected both in their workplace where the risk of exposure is maximum through direct and indirect contacts and also in Community.

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Editor's Comment :

- Health Care Workers, being one of the most vulnerable group in the community, are the ones to get affected by COVID-19 the most.
- Commitment and dedication towards the welfare of the patients defines the negligence of the Health Care Workers towards their own health. We here have made an attempt to bring light to this and stress on the importance of screening for early diagnosis and treatment of COVID-19.

MATERIALS AND METHODS

This is a cross sectional study done in Kempegowda Institute of Medical Sciences, Bangalore, by Department of ENT, to study the prevalence of ENT manifestations of COVID-19 in Health Care Workers of our center. The study was started in May 2020 targetting all health care workers of KIMS who were screened and had turned positive during this pandemic and willingly gave consent for our study.

The targeted groups were divided into 3 groups: Group 1 included doctors comprising of House Surgeons, Postgraduates and all teaching staff who turned to positive for COVID, Group 2 had nursing staff and Group 3 included auxiliary staff comprising of

Administrative Staff, House Keepers, Porters, Ward Boys and Attenders.

Statistical analysis was done and prevalence of ENT manifestations of COVID-19 among Health Care Workers in each group was assessed at the end of October 2020. Risk of exposure in each group was also noted.

DISCUSSION

The impact caused by the deadly Corona Virus has shook the world and has left many countries and its people and various sectors standstill. Health care workers have been one among the most high risk and vulnerable communities to have acquired this infection. They have been in the frontline of this fight from day 1 of its onset and continues to be, inevitably, during the course of which many have even succumbed to the virus.

The incubation period of COVID-19 virus, since the exposure to SARS-CoV-2 is believed to reach 14 days, but majority of cases develop symptoms after 4-5 days which can range between 2 and 7 days after being infected.

The most common manifestations of COVID-19 include fever, malaise, difficulty in breathing, anorexia, fatigue, diarrhoea. Patients may be diagnosed early with the help of various ENT symptoms like anosmia, aguesia, sore throat, sudden sensorineural hearing loss, tinnitus and headache¹.

According to CDC guidelines², positive patients are divided into 3 categories

- Category A includes all asymptomatic patients who maintain saturation of over 97% in room air,
- Category B includes all patients who maintain saturation above 90% but less than 95%, with mild tachypnoea and hypotension.
- Category C includes all patients who do not maintain saturation above 90% at room air, having severe tachypnoea and hypotension.

In our study, done during a period of 6 months from May, 2020 to October, 2020, targetting 1062 HCWS in our centre, 111 HCWS were found to have been detected positive. Among the 111 HCWS, 75 were doctors, 31 were nurse and 5 were the auxiliary staff. The prevalence of COVID-19 during the period among doctors, nurse and auxiliary staff was 16.7%, 5.4%, 13.5% respectively.

The most common age group of infected Health Care Workers in our centre was found to be between 25 to 29 years. This age group had mostly interns and Postgraduates bearing COVID duties.

In our study, most of the HCWS, 59 (53.2%), turned

out to be positive during their non COVID hospital duties in OPDs and OTs. 50 (45%) of them acquired the infection during their COVID duties and remaining 2 (1.8%) were found to have community acquired infection. The risks involved in non COVID hospital duties to Health Care Workers were attributed to inadequate protective measures taken by the health care workers in OPDs, patients coming to OPDs and for emergency OTs with unknown COVID-19 status, maximum contact time with patients while taking history and performing detailed clinical examination and procedures. Our speciality deals with examination of nose and throat which are the most risky systems involved in causing spread of the infection.

Inadequate protective and precautionary measures taken by health care workers were assessed and found to be due to many possible inevitable reasons like

Table 1 — Proportion of HCWs tested positive during study period

| HCW | Total strength | Tested positive | Percentage |
|--------------|----------------|-----------------|------------|
| Doctors | 450 | 75 | 16.7% |
| Staff nurses | 574 | 31 | 5.4% |
| Other HCWs | 37 | 5 | 13.5% |
| Total | 1061 | 111 | 10.5% |

Table 2 — Distribution of study subjects according to age (n=111)

| Age (In Years) | Frequency | Percentage |
|----------------|-----------|------------|
| <25 | 20 | 18% |
| 25-29 | 32 | 28.8% |
| 30-34 | 16 | 14.4% |
| 35-39 | 21 | 19% |
| >40 | 22 | 19.8% |
| Total | 111 | 100% |

Table 3 — Distribution of study subjects according to exposure and type of duty (n=111)

| Exposure | Frequency | Percentage |
|------------------------------------|-----------|------------|
| COVID duty | 50 | 45% |
| Non-COVID Hospital Duty (OPDs/OTs) | 59 | 53.2% |
| Others | 02 | 1.8% |
| Total | 111 | 100 |

Table 4 — The study showed that, majority of the study population belonged to blood group 'O positive' (41.4%) followed by 'B positive' (29.7%) and 'A positive' (22.6)

| Blood group | Frequency | Percentage |
|-------------|-----------|------------|
| O+ | 46 | 41.4% |
| O- | 01 | 0.9% |
| A+ | 25 | 22.6% |
| A- | 01 | 0.9% |
| B+ | 33 | 29.7% |
| B- | 01 | 0.9% |
| AB+ | 04 | 03.6% |
| AB- | 00 | 00 |
| Total | 111 | 100 |

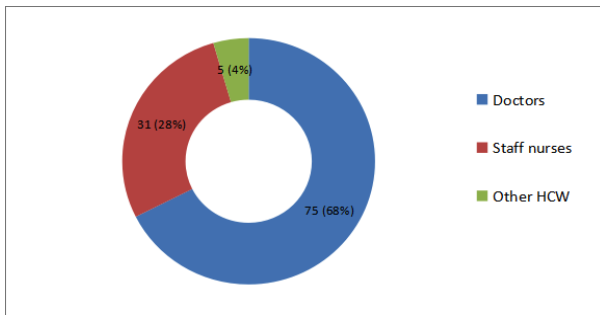


Fig 1 — Healthcare workers detected positive for COVID-19

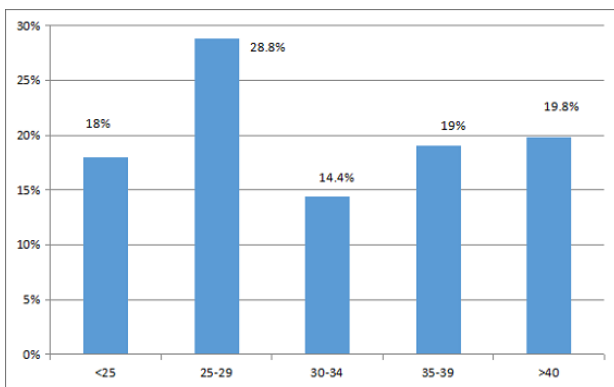


Fig 2 — Age distribution of health care workers affected by COVID-19

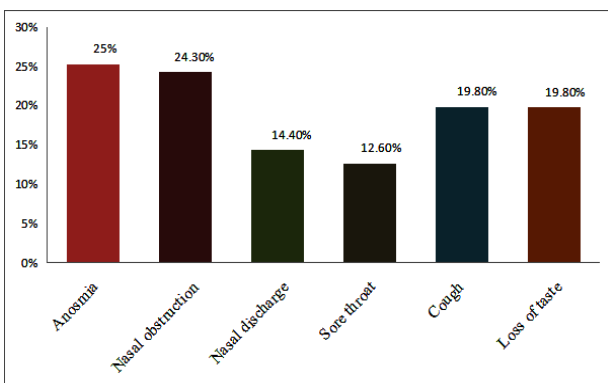


Fig 3 — ENT manifestations of COVID-19 among affected healthcare workers

scarcity of and provision of poor quality Personal Protective Equipment (PPE) kits to compensate for the shortage faced in the initial stages of the pandemic and improper use of the same. The sudden surge in cases and many of our Health Care Workers getting affected at the same time led to long working hours and very frequent and tiring COVID duties of the other

HCWs. The saturation and dehydration with improper donning and doffing of the PPE kits also could be the contributing factors to our Health Care Workers getting affected.

2 of our Health Care Workers were tested positive from family members who would have got exposed from their work place or social gatherings or from inevitable sources like shopping areas, pharmacies etc.

In our study, the most common ENT manifestation was anosmia (25.2%) followed by nasal obstruction (24.3%) and cough and loss of taste (19.8% each). Carlos M, *et al*^β in his study showed 81.9% of affected patients to have developed olfactory dysfunction. Study done by Gane, *et al*^α concluded sudden anosmia to be highly suspicious of COVID-19. Many asymptomatic patients were found to not develop any further symptoms except isolated sudden anosmia as brought in light by Gane, *et al*. In a study conducted by Mohammad Waheed El Anwar, *et al*^β in COVID-19 positive patients, the most common ENT manifestation was sore throat (13.3%) followed by headache (10.7%) and pharyngeal erythema (5.3%) while study done by Priyanka Chaurasia, *et al*^β showed sore throat to be the most common symptom. Corona virus has great affinity towards ACE 2 receptors which is abundant in human tissues including oral cavity, pharynx and digestive tract. Most of the symptoms of COVID-19 are attributed to this concept.

In our study, most of our affected HCWs were O positive (41.4%) followed by B positive (29.7%) and A positive (22.6%). F Powrali, *et al*^γ, in his study on relationship between Blood Group and risk of infection and death in COVID-19 and Blood Group found that patients with 'O' Blood Group were more susceptible for the infection and A blood group was least susceptible. This, he explained to the fact that ACE receptors which is the binding site for the virus was in least concentration in patients with 'O' blood group and in highest concentration in A blood group.

80 of our affected HCWs (72.1%) recovered from ENT symptoms in less than 1 week while 19 of them showed recovery in 1-2weeks. 12 of them took more than 2 weeks to recover.

In our study, 99 of our affected HCWs belonged to category A. The intense fear factor and home isolation not being allowed during the initial phase of the pandemic had almost all our category A patients, including the affected health care workers, admitted in our hospital. 12 of them belonged to Category B wherein oxygen administration was required.

CONCLUSION

COVID-19 pandemic is not over yet. Everyday, new cases are emerging in thousands and lakhs and now new strains of Corona Virus have also emerged causing new outbreaks as well. Adequate protective measures in COVID ward duties, OPDs and during surgical procedures should be followed. Patients being responsible enough to take necessary protective measures and not masking their symptoms with good cooperation plays a major contribution in combating the spread.

Conflict of interest : There were no conflicts of interest

Ethical committee : Clearance was taken

REFERENCES

- 1 Lovato A, de Filippis C — Clinical presentation of COVID- 19: a systematic review focusing on upper airway symptoms. *Ear Nose Throat J* 2020; **99(9)**: 569-76.
- 2 Centers for disease control and prevention. 2020 [cited 13 January 2021]. Available from: <https://www.cdc.gov/coronavirus/2019-ncov/hcp/clinical-guidance-management-patients.html>
- 3 Lechien JR — Eur Arch Otorhinolaryngol. 2020 Apr 6 1-11 :Olfactory and gustatory dysfunctions as a clinical presentation of mild-to-moderate forms of the coronavirus disease (COVID-19): a multicenter European study. doi: 10.1007/s00405-020-05965-1 .
- 4 Gane SB, Kelly C, Hopkins C — Isolated sudden onset anosmia in COVID-19 infection, 2020. A novel syndrome? *Rhinology*.<https://doi.org/10.4193/Rhin20.114>
- 5 El-Anwar MW, Elzayat S, Fouad YA — ENT manifestation in COVID-19 patients. *AurisNasus Larynx* 2020; **47(4)**: 559-564.
- 6 Chaurasia P, Kuchhal V, Ahmad S, Rawat P — ENT manifestations in Covid-19 positive patients. *Int J Health Clin Res* 2020; **3(10)**: 187-91
- 7 Pourali F, Afshari M, Alizadeh-Navaei R, Javidnia J, Moosazadeh M, Hessami A — New Microbes New Infect. 2020 Sep; **37**: 100743. Published online 2020 Aug 11. doi: <https://doi.org/10.1016/j.nmni.2020.100743>. PMID: PMC7418722

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