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Original Research Article

Prevalence of SARS-COV-2 infection among asymptomatic health care workers in a designated COVID -19 Hospital in Kashmir valley

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ABSTRACT

Introduction: Little information is available about COVID -19 infections among asymptomatic healthcare workers exposed to COVID- 19 positive patients directly or indirectly. Careful detection of such infections in hospitals is crucial for preventing spread of SARS-COV-19 infections in both hospitals as well as in the community.

Aims/Objective: The aim of this study is to know the prevalence of SARS- CoV-19 Infection among asymptomatic healthcare workers in SKIMS Medical college and hospital which is a COVID speciality hospital.

Results: Prevalence of Covid-19 in asymptomatic health care workers was low (9.3%) owing to better availability of PPE in the above mentioned hospital.

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1. Introduction

Emergence of severe respiratory syndrome coronavirus 2 (SARS CoV-2) causing COVID 19 has become a global health concern. As of November 2021 total number of COVID 19 cases globally crossed 250 million which includes nearly 5.2 million deaths.[1] Community transmission from asymptomatic individuals creates more burden to the disease.[2] Hospital acquired transmission has also been recognised as an important route of spread, as frontline health care workers (HCW) require close personal contact with patients infected with SARS-CoV-2. Further handling of human secretions particularly respiratory secretions enhance the risk of transmission. These facts, together with the fact that transmission is more likely in severely ill patients, have made the hospital settings more vulnerable to the rapid spread of SARS-CoV-2.

The increased risk of transmission of infection in hospitals contributes to further spread. As, HCW have been significantly affected by this pandemic worldwide, understanding the dynamics of SARS-CoV-2 infection in this set of population is essential for formulating an appropriate infection control measures. Especially understanding and knowing the rate of infected asymptomatic HCW is essential to reduce the nosocomial spread.

2. Materials and Methods

It is a retrospective study as this study includes the samples from health care workers working in the said hospital from March to September 2020. About 150 asymptomatic HCWs working were included. They have had exposure to COVID-19 patients either directly or indirectly and came to our department for testing. HCW included (a) clinicians (b) nursing staff,(c) therapists, (d) technicians, (e)pharmacists, (f) support staff (ie, housekeeping and security, and (g)

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administrative staff .

2.1. Inclusion criteria

All the asymptomatic health care workers irrespective of age and sex who came for covid-19 screening after having an initial exposure to positive cases.

2.2. Exclusion criteria

Symptomatic health care workers who had a history of exposure.

Infection with SARS CoV-2 was detected using real time RT PCR on samples taken both from nasopharynx and oropharynx.

3. Results

A total number of 150 asymptomatic HCWs having exposure directly or indirectly with COVID-19 patients were screened.

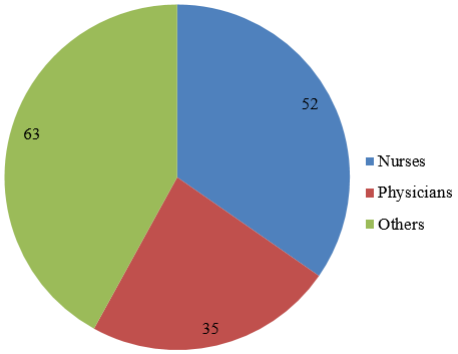

Fig. 1: Distribution of total samples n = 150

The asymptomatic HCWs include the following occupational categories: nurses (52 of 150), physicians (35 of 150) and 63 other personnel including, sweepers, security guard, porters, ambulance drivers and administrative staff. The average age was 32.02 years with the majority of HCWs was males 64% (96 of 150)(Table 1). This study showed that among 150 asymptomatic HCWs that were screened 14 were positive and 136 were negative. Therefore, unexpectedly, the prevalence of positive-COVID-19 among asymptomatic HCWs who take care of patients infected with the novel corona virus was low. Among 14 positive cases 5 were nurses and 3 were doctors and 6 were from other categories. Though nurses were directly involved with COVID 19 patients as compared to other categories still much of the difference has not been appreciated.

4. Discussion

Since December 2019, the world has been in the grip of the severe acute respiratory syndrome coronavirus 2 and

Table 1: Demographic data of health care workers.

Category	Nurses	Doctors	Others	Total
Number	52	35	63	150
Average age	32.96	28.12	35	32.02
Gender (m/F)	30/22	25/10	38/25	93/57
+ve RTPCR results	5	3	6	14
percentage	9.61	8.5	9.5	9.3

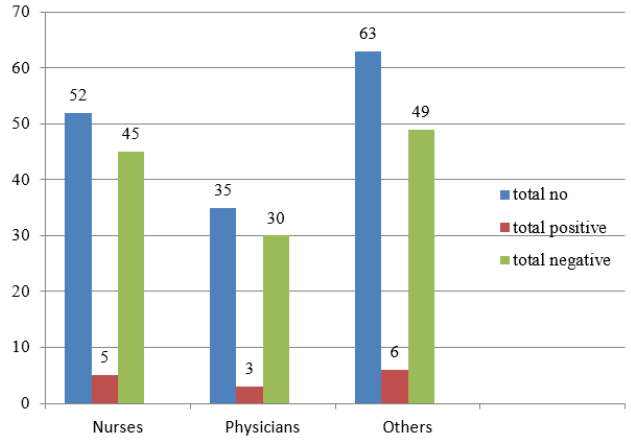

Fig. 2: Frequency of distribution of Positive cases

the disease it causes, COVID-19.[3] Since then, the spread of COVID-19 has increased exponentially, with the World Health Organization (WHO) declaring it a pandemic on 11 March 2020.[4] As of now COVID-19 pandemic reopening strategies are still being contemplated, Understanding asymptomatic SARS-CoV-2 infection among HCWs is critical,[5,6] as they are at high risk of morbidity and mortality due to health care associated infections.[7] In Italy, it was observed that HCWs have higher rates of infection and death.[8] On the other hand, some studies experienced that COVID-19 amongst HCWs will depend upon a range of factors, including the availability of PPE's, the healthcare setting and access to testing. It also depends largely on how effectively health workforce is used.[9] This study was undertaken to know about the prevalence of COVID-19 infection among our staff which in turn would help us in decreasing the stress and worries of the HCWs about their risk of having the virus,[10] and transmitting COVID-19 the same to their colleagues, families or to other non-COVID-19 patients. The local infection control committee should be working to educate HCWs about caring for COVID-19 patients regarding hand hygiene, donning and doffing PPE. In our study, we found that the prevalence of COVID-19 among asymptomatic HCWs who take care of patients infected with the novel coronavirus was 9.3%. Which is in concordance with some other studies done by N. Jones et al. which showed about 10% of all those infected with COVID-19 in some European countries are HCWs[10] and Rehman addelmoniem et al which showed 14.3% of asymptomatic

health care workers were positive.[11] Although this result could be due to our policies and protective measures, it was unexpected and against our assumption as HCWs are high risk group. The reason for low prevalence might be firstly the subjects in our study were all asymptomatic and rRT-PCR test can elicit false-negative results especially in asymptomatic cases due to relatively low viral loads. Secondly the types of PPE used in our hospital, as we used: gloves, N95 masks with tight seal around mouth and nose, face and eye protection including face shields and goggles, clothing which includes gowns, aprons, head covering, and shoe covers.We also adopted a policy which allows every HCW to take two weeks of home self-isolation after finishing their working shift. Moreover, we separated wards that could be contaminated with the virus from other low risk facilities and we minimized the time of contact between HCWs and infected patients by limiting unnecessary procedures. It is worth mentioning that among the 150 HCWs in our study assigned to deal with COVID-19 patients only 5 nurses, 3 doctors and 6 other category HCWS were infected. Our comparison across job categories of COVID-19–facing HCWs did not yield significant differences between high and low exposures groups, which is in discordance with the study done by Golnar sabetian et al which showed majority of positive cases were among the nurses.[12] As we found slightly higher positive cases among other category which included the supporting staff of the said hospital this can be supported by the study conducted by Rehman addelmoniem et al which showed the frequency of SARS COV infection was higher in staff detailing with patients transportation and cleaning followed by nurses.[11] Hence we support the need for uniform infection control practices within patient care units and ongoing HCW screening and surveillance. These practises are imperative to restore clinical operations.

5. Conclusion

Unexpectedly, the prevalence of COVID-19 among asymptomatic HCWs infected with the novel coronavirus was 9.3%. This result should be interpreted cautiously. Further studies should be carried out to find effective strategy of screening HCWs to ensure a safe working environment.

6. Conflict of Interest

The authors declare no relevant conflicts of interest.

7. Source of Funding

None.

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