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A COMPARATIVE STUDY OF RISK OF RE INFECTION OF SARS COV-2 AMONG DOCTORS WORKING IN HOSPITALS OF JHARKHAND.

General Medicine

Nivedita* Junior Resident, Department Of Medicine, Rajendra Institute Of Medical Sciences, Ranchi.*Corresponding Author

Abhishek Kumar Junior Resident, Department Of Medicine, Rajendra Institute Of Medical Sciences, Ranchi.

Abhishek Sinha Junior Resident, Department Of Medicine, Rajendra Institute Of Medical Sciences, Ranchi

Smita Suchi Junior Resident, Department Of Medicine, Rajendra Institute Of Medical Sciences, Ranchi

ABSTRACT

BACKGROUND: Coronavirus disease is a disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The lungs are the most common organ to be affected by COVID-19 and sometimes even leading to ARDS. The risk of infection is maximum in healthcare workers and so the re-infection.

AIM: To assess the risk of re-infection of COVID 19 among doctors working in hospitals of Jharkhand.

MATERIALS AND METHODS: A cross- sectional study involving 270 Junior Residents from different clinical departments working in Rajendra Institute of Medical Sciences, Ranchi, Jharkhand.

INCLUSION CRITERIA: Junior Residents from clinical Departments of Rajendra Institute of Medical Sciences, Ranchi, Jharkhand (Department of Medicine, Surgery, Obstetrics and Gynaecology, Orthopedics, Paediatrics, Anaesthesia, ENT, Dermatology and Ophthalmology) were included during a period of September 2020 to November 2020.

EXCLUSION CRITERIA: Junior Residents from non-clinical Departments of Rajendra Institute of Medical Sciences, Ranchi, Jharkhand were excluded from this study.

RESULTS: Out of total 225 Junior Residents working in various clinical departments of Rajendra Institute of Medical Sciences, Ranchi 7 Junior Residents have got re-infection with COVID 19 after getting diagnosed with rRT-PCR for the second time with maximum chances of re –infection among Junior Residents of General Surgery working in Rajendra Institute of Medical Sciences, Jharkhand

KEYWORDS

INTRODUCTION:

Coronavirus disease is a disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The first case was identified in Wuhan, China, in December 2019 and since it has spread worldwide, becoming a pandemic.

Symptoms of this disease are variable, including fever, cough, fatigue, breathing difficulties, and loss of smell and taste. Symptoms usually begin one to fourteen days after exposure to the virus. While most people have mild symptoms, some people develop acute respiratory distress syndrome (ARDS) ,precipitated by cytokine storms, multi-organ failure, septic shock, and blood clots. Small droplets and aerosols containing the virus can spread from an infected person and helps in spreading the disease

The lungs are the organs most affected by COVID-19 because the virus accesses host cells via the enzyme angiotensin-converting enzyme 2 (ACE 2), which is most abundant in type II alveolar cells of the lungs.The virus uses a special surface glycoprotein called a "spike" (peplomer) to connect to ACE2 and enter the host cell.

The standard diagnosis of this disease is made by Rrt-PCR from a nasopharyngeal swab

In prevention of spread of disease, Social distancing has also played an important role in slowing the spread of the disease by minimising close contact between individuals. The WHO and US CDC recommend individuals wear non-medical face coverings in public settings where there is an increased risk of transmission and where social distancing measures are difficult to maintain.

The WHO also recommends that individuals frequent hands washing often with soap and water for at least 20 seconds. The CDC recommends using an alcohol-based hand sanitiser with at least 60% alcohol, but only when soap and water are not readily available.

MATERIALS AND METHODS: This was a single centre, cross-sectional study involving 270 Junior Residents from different clinical departments working in Rajendra Institute of Medical Sciences, Ranchi over a period of September 2020 to November 2020.Re-infection with SARS-coV-2 was confirmed with RT-PCR analysis of oropharyngeal and nasopharyngeal swab.

INCLUSION CRITERIA:

Junior Residents from clinical Departments of Rajendra Institute of Medical Sciences, Ranchi, Jharkhand (Department of Medicine, Surgery, Obstetrics and Gynaecology, Orthopedics, Paediatrics, Anaesthesia, ENT, Dermatology and Ophthalmology) were included during a period of September 2020 to November 2020.

EXCLUSION CRITERIA:

Junior Residents from non-clinical Departments of Rajendra Institute of Medical Sciences, Ranchi, Jharkhand were excluded from this study.

RESULTS:

The risk of re-infection with COVID 19 is maximum among JRs of Department of General study with 37.5% of re-infection followed by Departments of Obstetrics & Gynaecology with 25% and then Department of ENT, Anaethesia and Dermatology with 12.5%% each.

Table 1: Distribution Of Jrs In Various Department And Risk Of Re Infection With Covid 19

Department	Total no JRs	No of JRs who got re-infected with COVID 19
General Medicine	45	0
General Surgery	72	3
Obstetrics & Gynaecology	27	1
Paediatrics	18	0
Orthopaedics	9	0
Ophthalmology	18	0
ENT	15	1
Anaesthesia	12	1
Dermatology	9	1
Total	225	7

Table 2: Percentage Of Re-infection With Covid 19 In Various Departments

Department	No of JRs who got re-infected with COVID 19	Percentage of re-infection(N=7)
General Medicine	0	0%
General Surgery	3	37.5%
Obstetrics & Gynaecology	1	25%
Paediatrics	0	0%
Orthopaedics	0	0%
Ophthalmology	0	0%
ENT	1	12.5%
Anaesthesia	1	12.5%
Dermatology	1	12.5%
Total	7	100%

Overall the risk of re-infection with COVID 19 is maximum among JRs of Department of General study with 37.5% of re-infection followed by Departments of Obstetrics & Gynaecology with 25% and then Department of ENT, Anaethesia and Dermatology with 12.5%% each.

DISCUSSION:

In our study it was seen that department of general surgery is at maximum risk of re-infection with COVID 19 which is consistent with study done by Balhareth et al which reported the risk of COVID 19 infection among doctors of department of surgery to be 41.3%

In a study done by de Brito et al also has reported evidence of COVID re-infection among doctors for the second time and also a study conducted by Fernandes et al in Brazil has reported re-infection of COVID 19 in healthcare workers.

In a study conducted by Bhagavathula et al showed 61.0% of health workers including doctors used social media to obtain information on COVID-19 and also a significant proportion of HCWs had poor knowledge of its transmission and symptom onset which also plays an important role in spread of re-infection.

CONCLUSION:

Following preventive measures should be taken to prevent the spread of re-infection in hospitals

All doctors and other health workers should be trained properly regarding frequent hand sanitization, donning and doffing of PPE suits and frequent wearing of N95 masks .

Regularly and thoroughly cleaning hands with an alcohol-based hand rub or washing them with soap and water eliminates germs including viruses that may be on hands.

Avoidance of touching eyes, nose and mouth. Hands touch many surfaces and can pick up viruses. Once contaminated, hands can transfer the virus to eyes, nose or mouth. From there, the virus can enter body and infect an individual.

Covering mouth and nose with bent elbow or tissue while coughing or sneezing.

Clean and disinfect surfaces frequently especially those which are regularly touched, such as door handles, faucets and phone screens.

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