

“Incidence and Epidemiological Profile of Respiratory Tract Infections among Residents during Residency in Tertiary Health Care Center”

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ABSTRACT:

BACKGROUND :- There is high incidence of respiratory tract infections in post graduate resident doctors in most tertiary care hospital, In that COVID 19 is the major cause of working hours loss in post graduate medical resident doctors. Doctors are at the frontline of healthcare delivery during the COVID-19 pandemic and are most likely to get infection. The doctors treating and interacting with patients during these times are at a very high risk of contracting the infection, leading to a possible higher chance of infection. Other respiratory tract infection like tuberculosis is also common because there are more exposure with tuberculosis patients.

METHODS AND MATERIALS :- We evaluated a total of 60 resident doctors from Netaji Subhash Chandra Bose medical college, Jabalpur who met the inclusion criteria. The study was a Hospital based (single center) Cross sectional study. Carried out for a period of one and half year from 1st March 2020 to 31st August 2021, after taking the ethical clearance from the Institutional Ethical Committee.

RESULTS :- Our study showed that the most common respiratory tract infection among resident doctors is COVID 19 (90%) followed by Tuberculosis (10%). Out of 54 residents who have Positive RTPCR for Covid 19, 53 (98.2%) resident have mild disease, only 1 (1.8%) resident have moderate disease, No resident have developed severe disease and no Death reported in present study due to Covid 19 infection.

CONCLUSION :- Residents particularly those in Clinical specialties, are at an increased risk of developing respiratory tract infections resulting from nosocomial transmission. This study provide some evidence of an association between occupational exposure and incidence, and highlights the need for systematic prevention measures.

KEYWORD: incidence and epidemiological profile of respiratory tract infections among residents

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I. Introduction

There is high incidence of respiratory tract infections in post graduate resident doctors in most tertiary care hospital, In that COVID 19 is the major cause of working hours loss in post graduate medical resident doctors. The doctors treating and interacting with patients during these times are at a very high risk of contracting the infection, leading to a possible higher chance of infection. There are other risk factors that makes them more susceptible to contract infection like lack of sleep, unhealthy eating habits and large working hours. Other respiratory tract infection like tuberculosis is also common because there are more exposure with tuberculosis patients

II. Materials And Methods

The present study was a Hospital based (single center) Cross sectional study.

Carried out for a period of one and half year from 1st March 2020 to 31st August 2021, after taking the ethical clearance from the Institutional Ethical Committee.

STUDY AREA

The present study was carried out in Department of Medicine, Netaji Subhash Chandra Bose Medical College & Hospital, Jabalpur (M.P.)

STUDY POPULATION

The present study was conducted among PG Residents at Netaji Subash Chandra Bose Medical College & Hospital, Jabalpur (M.P).

SAMPLE SIZE:-60

INCLUSION CRITERIA-

All residents who have symptoms of respiratory tract infection.

EXCLUSION CRITERIA-

Other health care workers.

Not willing to be a part of study

K/C/O Tuberculosis/Bronchial asthma/COPD

III. Method :-

After taking the clearance from Institutional Ethics Committee data was collected from the Residents during OPD and IPD hours after the informed and voluntary consent.

Details regarding, clinical signs and symptoms was obtained from the study participants and the details regarding laboratory investigation was obtained from the records of the patient.

All the records will be recorded by using structured schedule (case report form) and entered in Microsoft Excel Sheet.

IV. Observation And Results

Distribution of the participants according to age.

SNo	Age	Number of cases (n= 60)	Percentage %
1	25-30	54	90 %
2	30-35	6	10 %
3	35-40	0	0 %
Total		60	100 %

Distribution of the participants according to gender.

SNo.	Gender	Number of cases (n= 60)	Percentage %
1	Male	34	56.7 %
2	Female	26	43.3 %
Total		60	100 %

Distribution of the participants according to specialities.

S No.	Specialities	Number of cases (n= 60)	Percentage %
1	Clinical	46	76.7 %
2	Para clinical	8	13.3 %
3	Non clinical	6	10 %
Total		60	100 %

Distribution of the participants on the basis of RTPCR for Covid 19

S No.	Test result	Number of cases (n= 60)	Percentage %
1	Positive	54	90 %
2	Negative	6	10 %
Total		60	100 %

Distribution of the participants on the basis of Sputum AFB and RTPCR for Covid 19

Sputum AFB	RT PCR FOR COVID 19		Total
	NEGATIVE	POSITIVE	
Positive	1 (100.0%)	0 (0.0%)	1 (100.0%)
Negative	5 (8.5%)	54 (91.5%)	59 (100.0%)
Total	6 (10.0%)	54 (90.0%)	60 (100.0%)

- Relation between sputum AFB and RTPCR for covid 19 is statistically significant (p= 0.002).

Distribution of the participants on the basis of HRCT Chest and RTPCR for Covid 19

S No.	HRCT Findings	Number of cases (n= 60)	RT PCR FOR COVID 19		
			NEGATIVE	POSITIVE	Percentage %
1	Normal scan	41	1	40	68.3 %
2	CORAD 5 CTSS 2	1	0	1	1.7 %
3	CORAD 5 CTSS 3	2	0	2	3.3 %
4	CORAD5 CTSS 4	3	0	3	5 %
5	CORAD 5 CTSS 5	2	0	2	3.3 %
6	CORAD 5 CTSS 6	1	0	1	1.7 %
7	CORAD 5 CTSS 7	1	0	1	1.7 %
8	CORAD 5 CTSS 12	1	0	1	1.7 %
9	Right side mild pleural effusion	1	1	0	1.7 %
10	Right side moderate pleural effusion	1	1	0	1.7 %
11	Right side interstitial pneumonitis0	1	1	0	1.7 %
12	Left side mild pleural effusion	2	2	0	3.3 %
13	Atypical interstitial pneumonitis	1	0	1	1.7 %
14	Interstitial pneumonitis	1	0	1	1.7 %
15	Mild central bronchiectasis	1	0	1	1.7 %
	Total	60	6	54	100 %

- Relation between HRCT Chest and RTPCR for covid 19 is statistically significant (p= 0.001).

V. Discussion

- The mean age of the study participants was 27.57 years with maximum study participants i.e. 25 to 30 (90 %) years of age which is similar to the findings by, in which **Saket Prakash et al (2021)**,^[1], **G. Rao et al (2004)**,^[2], **S. A. Rao et al (2016)**,^[3], **Geeta S. Pardeshi et al (2017)**.^[4]
- Majority of the patients encountered in the present study were male 34 (56.7%) followed by 26 (43.3%) female.
- In the present study more than two third of the residents i.e. in 46 (76.7%) are from clinical specialities, followed by para clinical ie 8 (13.3%) followed by Non clinical ie. 6 (10%).
- The study findings is similar in **Saket Prakash et al (2021)**, **S. A. Rao et al (2016)** .
- In the present study 6 (10 %) residents was infected with tuberculosis. The mean age in present study is 27.57 years.
- Out of 54 covid 19 Rtpcr positive residents 53 (98.14 %) residents were mild disease and 1 (1.86%) resident was develop moderate disease, no residents develop severe disease and no death reported due to covid 19 infection in study participants.

VI. Conclusion

- Residents working at our hospital, particularly those in Clinical specialties, are at an increased risk of developing respiratory tract infections resulting from nosocomial transmission.
- This study provides some evidence of an association between occupational exposure and incidence, and highlights the need for systematic prevention measures. Due to excessive workload and inadequate sleep and rest time leading to stress, especially in the first year of residency have been described in other studies too.^[5,6,7,8]
- In certain procedures, the doctors examine the patients from closely, which is perceived to increase risk of respiratory infection transmission.
- Medicine wards, Covid-19 Wards, TB wards, ART Center, bronchoscopy rooms, Intensive Care Units, radiology department, autopsy suites, and TB laboratories are designated high risk areas.^[9]
- Good ventilation, masks for patients, and appropriate personal protective equipment for the doctors should be ensured for high risk procedures and areas.
- Using N-95 masks has been shown to lower the risk of incidence of respiratory tract infections.^[10]

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