



EVALUATION OF THE MODE OF TRANSMISSION OF INFECTION IN COVID-19

Medicine

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ABSTRACT

INTRODUCTION: The virus designated as severe acute respiratory syndrome corona virus-2 (SARS – CoV – 2) is the etiological agent of corona virus induced disease (COVID-19) which is declared as pandemic by W.H.O. Globally the infection rate is rising. This infection spreads by direct and indirect methods. Direct mode includes transmission via aerosols. Indirect transmission may occur via fomites or surfaces (furniture and fixtures). **AIMS AND OBJECTIVES:** Studying various modes of transmission of infection in COVID-19. **MATERIALS AND METHODS:** Inclusion criteria: Patients who are positive for SARS-CoV-2. Exclusion criteria: Patients aged less than 20 years. **RESULTS:** In this study 31 patients got infected by direct contact with COVID-19 positive patients (31%), 69 patients got infected in gatherings through fomites and aerosols (69%). **CONCLUSION:** In this study most of the patients got infected through coming in contact with fomites and aerosols in gatherings. So to prevent infection it is better to maintain physical distance, using facial masks, avoiding directly touching the fomites and frequent handwashing are necessary.

KEYWORDS

COVID-19, SARS-CoV-2, RTPCR test, Primary contact, Fomites.

INTRODUCTION:

In December 2019, the capital of the Chinese province Hubei, Wuhan city, witnessed an outbreak of “pneumonia of unknown source” attributing to a newly identified culprit: a novel corona virus. The virus designated as severe acute respiratory syndrome corona virus 2 (SARS-CoV-2) is the etiological agent of the corona virus induced disease (COVID-19) which is declared as pandemic by W.H.O.¹⁻³.

Globally more than 39.6 million people are infected by SARS-CoV-2 and nearly 1.1 million deaths have occurred. In India 74.94 lakh people are infected and have led to 1.14 lakh deaths till date. SARS-CoV-2 is a respiratory system affecting virus with wide spectrum of manifestations from asymptomatic to critical illness. Globally the infection rate is rising exponentially and overall reported mortality varies widely from 4.3% to 15%, however mortality in critically ill has been reported high from 16% to 78%.⁵⁻¹¹

The first case of the COVID-19 pandemic in India was reported on 30th January, 2020. Broadly two modes of transmission exists – direct and indirect. The direct mode includes (1) Transmission via aerosols formed via surgical and dental procedures and/or in the form of respiratory droplet nuclei, (2) other body fluids and secretions. SARS-CoV-2 is thought to commonly spread via respiratory droplets formed while talking, coughing and sneezing of an infected person. Indirect transmission may occur via (1) fomites or surfaces (furniture and fixtures) present within the immediate environment of an infected patient and (2) objects used on the infected patients (stethoscope, thermometer).^{12,13}

AIMS AND OBJECTIVES:

Evaluation of various modes of transmission of infection in COVID-19, patients who are admitted in a tertiary hospital (SVRRGG Hospital, Tirupati).

MATERIALS AND METHODS:

Inclusion criteria:

- COVID-19 patients who are admitted in SVRRGG Hospital, Tirupati.
- Patients aged more than 20 years

These patients are tested for SARS-CoV-2 positive (nasopharyngeal swab) by RTPCR test.

Exclusion criteria:

- Patients aged less than 20 years
- Patients who are critically ill

RESULTS:

S.NO.	Mode of transmission	No. of patients	Percentage
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1	Primary contact (Direct contact with COVID-19 patients)	31	31%
2	Fomites and aerosols	69	69%

DISCUSSION:

In this study 100 COVID-19 positive patients were selected, who were admitted in SVRRGG Hospital, Tirupati. All these patients swab tested was positive for SARS-CoV-2 by RTPCR test. In this study, while taking the history from the patients, it is observed that 31 patients got infected through primary contact and 69 patients got infected by fomites and aerosols. Most of the patients had given the history of social gatherings like shops, market areas, etc., which may be considered as fomites and aerosols were the cause of transmission of infection.

In this study 31 patients got infected by direct contact with COVID-19 patients (31%). But 69 of patients got infected in gatherings through fomites and aerosols (69%). Air borne transmission via aerosols formation is suspected to be the main mode of transmission. Aerosols are particles under 100.14. Thus, their minute size and suspension in the air may ease direct contraction of the virus. Ong et al. studied several samples taken from the furniture and fixtures from an infected patient's room (before routine cleaning of the room).⁷ Interestingly, all the samples returned positive for the virus. Work by Doremalen et al. demonstrated that aerosolized SARS-CoV-2 remains viable in the aerosols for three hours and on different surfaces for 4-72 hours.¹⁵ Thus virus may be transmitted to those touching the contaminated surfaces (fomites). Fomites may be regarded as an indirect way of human to human transmission.

CONCLUSION:

In our study most of the patients got infected through touching the fomites and aerosols in gatherings. So to prevent infection it is better to maintain physical distance, using facial mask, avoiding directly touching the fomites, frequently doing hand washing with sanitizers and soap water. To prevent COVID-19 infection it is better not to go into gatherings and not to have direct contact with COVID-19 positive patients without using personal protective equipment.

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