



Nosocomial Infection in SARS COV-2 Pandemic

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Abstract

In SARS COV-2 pandemic, the healthcare facilities are the most actively functioning setups which are the critical (microbiologically) areas. Due to these facilities patients were benefitted but during this time many health care providers suffered from nosocomial infection and many were complaining about the spread of nosocomial infection. Hospitals and healthcare facilities are easy place for contacting with infection, but the spread of infection should be stopped by taking proper disinfection measures.

Keywords: SARS; Pandemic; Nosocomial Infection; Surgical Site Infection

Abbreviations: Sarscov-2: Severe Acute Respiratory Syndrome Coronavirus 2; PPE: Personal Protective Equipment; UTI: Urinary Tract Infection; CUTI: Catheter Associated Urinary Tract Infection; VAC: Ventilator-Associated Conditions.

Introduction

The severe acute respiratory syndrome coronavirus 2 (SARSCoV-2), a novel strain of human coronavirus has spread over the world since its first case was reported from Wuhan, China in December 2019 and quickly this virus infected people from all over the world. When persons got infected with COVID-19 they produce symptoms like fatigue, fever, sore throat, congested chest, dyspnea, and diarrhoea, coughing up phlegm or blood, cough or sneeze and they release respiratory droplets that carry the virus causing the disease. Healthcare facilities are struggling to keep up with the influx of patients due to the rapidly deteriorating global economy. There have been some cases of transmission through faeces or direct contact, but the majority of human-to-human transmission happens through aerosols. According to the China CDC's findings, the incubation period typically

lasts one to three week of time period. The pandemic spreads across the world in short period of time. Although different infection prevention procedures were followed still, the infection cannot be stopped. All around the world many researchers working on the infection prevention criteria to provide the best protocol to prevent particular infection. This disease has initiated alertness and increase readiness for active prevention and control of infection. This can be done by wearing personal protective equipment (PPE), hygienic and disinfection measures like hand wash, hand hygiene procedure, biomedical waste disposal measures linked with caring for the infected patients. Still these patients are capable of spreading infection. The major cause of nosocomial infections are overcrowding of patients, unavailability of protective equipment and chemicals such PPE, disinfectant solution, improper use of sterilisation and disinfection criteria [1,2].

Different Kinds of Nosocomial Infection Observed During Pandemic

Due to influence of SARS COV-2 pandemic nosocomial infections are commonly observed. As per a previous study,

many patients complained regarding surgical site infection caused from catheter or *Clostridium difficile* infection. This condition made their situation more critical. Various kinds of infections related to nosocomial infections were observed such as urinary tract infection (UTI), Catheter associated urinary tract infection (CAUTI), cold, cough, fever, bacterial meningitis, *Staphylococcus aureus* infection, Central line-associated bloodstream infection is one of them. As per previous reports it was increased. It will also lead to develop the antimicrobial resistance. Hospital based infections are the major cause for the infection, morbidity and mortality of healthcare facility staff as well as inmates [3,4]. In case of organ damage lungs and kidneys are majorly affected organs during SARS COV-2, the diabetic and hypertensive patients are major sufferers [5]. Catheter associated UTI generally found in dialysis patients as per the reports major reason is the improper insertion of catheter. Majority of lungs infections cases reported due to combining effect of ventilator-associated conditions (VAC) with infection-related VAC. As the disease progresses and the patient's respiratory condition worsen, the ventilator settings must be increased to prevent the above mention issues [6].

Causes and Preventive Measures Related to Nosocomial Infection

Use of PPE is a basic requirement, but after visiting infected areas and infected patients the donning and doffing procedure should be followed properly. Reuse of infected PPE will cause infection, so it should be discarded immediately after the use, it should not be stored. However, several PPE conservation techniques, including as the reuse of isolation gowns, patient and staff cohorting, and a decreased focus on contact isolation procedures in lower-risk patients, may promote the transmission of the disease, Use of PPE for an extended period can cause body pain, dehydration of healthcare providers [7]. The infected patient room should be properly clean, sanitized and all the waste materials should be properly segregated and disposed by following Bio medical waste measures [8]. There is a high risk of spread surgical site infection, which leads to spread of many diseases after and before surgery. Many surgical cases also contribute a number of surgical site infections, so before and after surgery it needs to be cleaned and sanitised properly, during each operation procedure as per the clinical guideline. The surgical site infection can be prevented by microbial examination followed with proper sterilisation and disinfection procedures [8,9].

Hospital environmental cleaning is a primary requirement during this pandemic. If there is smooth management to provide adequate disinfectants, healthcare facilities are concentrating on hand hygiene and environmental cleaning, then reduction of nosocomial infection can be achieved.

Additional environmental cleaning methods are used, such as ultraviolet lights or vaporised hydrogen peroxide [8,10]. The area used by general population that are overcrowded in nature such as marketplaces, visiting-places (not included healthcare facility) and these places were far away from "hotspot" areas can contribute to the spread of disease by direct contact. It's common for these same facilities to encourage staff members who are less busy to spend their time doing environmental cleaning in these areas [3].

Good hand hygiene practice by following handwash protocol is a major criterion in the reduction of infection rates. It is the most effective criteria which prevent cross-contamination [8,9]. The nosocomial infection can be prevented by following the proper sterilization and disinfection guidelines provided by the WHO, CDC; such as by wearing PPE, use of proper respirators /masks, use of protective face-shield, eye glasses. In order to determine whether or whether one healthcare provider was infected at work or in the community, they (healthcare provider, hospital workers/employees) should undergo a process of routine health check-up. He/she should be vaccinated at proper time as per the WHO guideline. The rates of infection were lowered after the application of home quarantine criteria for SARS COV-2 infected cases. It was observed and reported by many reports [8-10].

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