

A Study to assess the bacterial infections among COVID 19 patients admitted in ICU of selected Hospitals in Indore

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Introduction

The severe acute respiratory syndrome coronavirus 2 was discovered for the first time in December 2019 in Wuhan, China. The COVID-19 illness, caused by the virus that is currently spreading over the globe and is responsible for the coronavirus disease that happened in 2019, is the worst pandemic of our time, affecting 227 million people worldwide and killing one million (WHO). Clinical specimens from the upper respiratory tract and blood samples for bacterial cultures are recommended under the World Health Organization (WHO) recommendations for the clinical care of COVID-19 illness, with the initiation of empirical antibiotic therapy reserved for the most severe patients. In addition, the recommendations say that practitioners should wait until the illness has reached a critical stage before beginning empirical antibiotic treatment. Another suggestion in the guidelines is that doctors wait to provide antibiotics until it is established that patients have contracted COVID-19. Evidence mounts that a sizable subset of COVID-19 patients also have secondary bacterial infections. These infections are particularly dangerous because they increase the severity of illness and the death rate, especially for patients who need invasive mechanical ventilation. Bacterial co-infection and secondary infection are rather uncommon in individuals with COVID-19; however, they occur more often in patients who are critically ill and getting treatment in intensive care units (ICUs). Several studies involving patients with COVID-19 who were brought to the intensive care unit stress the need for using antibiotics on an empiric basis. A potentially harmful outcome is a rise in the prevalence of MDR microorganisms. Patients infected with COVID-19 due to pneumonia are more likely to be admitted to the intensive care unit and die from their illness while in the hospital. COVID-19 patients often suffer from infections caused by *Klebsiella pneumoniae*, *Acinetobacter* spp., *Pseudomonas* spp., *Escherichia coli*, and *Staphylococcus* spp. In order to effectively treat COVID-19 patients and

encourage the responsible use of antibiotics in an effort to decrease the prevalence of antibiotic-resistant bacteria, it is crucial to have a firm grasp on the percentage of COVID-19 patients who also have an acute respiratory bacterial co-infection. Having this knowledge is also crucial for encouraging the prudent use of antibiotics, which is necessary for controlling the spread of drug-resistant bacteria. The purpose of this study was to analyse data from a random sample of patients admitted to a subset of Indore's hospitals in order to determine the prevalence of secondary bacterial infections, the levels of antibiotic resistance among these infections, the antibiotic treatments these patients received, and their clinical characteristics.

Methodology

Researcher carried up a research in which we included all of the adult patients who were admitted to the intensive care units of different hospitals in Indore owing to problems associated with COVID19 pneumonia. Participation in this research required participants to submit an RT-PCR result that was satisfactory. The following data was collected: age, gender, symptoms, co-morbidities, socioeconomic level, length of hospital stay, results, antibiotic and steroid regimen. The method of selection that was used was one that included taking a sample at random. The time period covered by this data collection was May 2021 to September 2021. clinical sample were collected during data collection, Descriptive and inferential statistic was used for analysing the data.

Results

K. pneumoniae isolates were found to be very resistant to almost all of the eleven antibiotics used in the antimicrobial susceptibility tests. This is shown by the fact that they achieved first place. The MICs for the K. pneumoniae isolates that showed resistance to colistin ranged from 5.0 to 20.0 mg/L, and the proportion of resistant strains was 11.7%. The minimal inhibitory concentrations also ranged from 5 to 20 mg/L. Even though all the A. baumannii strains tested positive for resistance to ceftazidime, meropenem, cefotaxime, cefepime, piperacillin, and fluoroquinolones, colistin still showed effective against them. Amikacin resistance was at 93.6%, gentamicin resistance was at 98.1%, and ampicillin/sulbactam resistance was at 60% among A. baumannii isolates. S.

epidermidis was resistant to all of the antibiotics that were tested, with the exception of vancomycin, linezolid, and teicoplanin.

Conclusion

Superinfection among patients who are receiving treatment in the intensive care unit (ICU) is a critical concern during the COVID-19 pandemic. This is due to the fact that superinfection may aggravate the severity of the illness as well as the possibility of fatality. According to the information that we provide, one individual out of every twelve patients treated to the hospital with severe COVID-19 also had a subsequent bacterial infection upon admission to the critical care unit. These findings provide credibility to the considerable death rate that has traditionally been linked to these illnesses in the medical literature. Antimicrobial stewardship and other forms of infection management are in dire need of further attention in Indore as a direct consequence of the recent spike in the number of COVID-19 cases that have been reported there.

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