

Study of Incidence of Nosocomial Infections Among Patients Admitted in Wards: An Institutional Based Study

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ABSTRACT

Background: Nosocomial infections can occur during healthcare delivery for other diseases as well as after patients have been discharged. They also include occupational infections among medical personnel. The present study was conducted to assess incidence of nosocomial infections among patients admitted in wards in a tertiary care hospital.

Material & Methods: The study was conducted among 280 patients to assess incidence of nosocomial infections among patients admitted in wards in Katuri Medical College and Hospital, Guntur, Andhra Pradesh, India. Collection of data was done from patients, analysis of infections, and their causes was carried out. Data so obtained was evaluated using SPSS-20 and was expressed as percentage and variables as required.

Results: In the present study total 280 patients were included out of which 172 were males and 108 were females. The percentage of subjects with nosocomial infection was 20.71%. Among these most of patients were suffering from Urinary tract infection (8.57%) followed by Pneumonia (4.64%). Nosocomial infections were present in more in males (11.42%) than in females (9.2%).

Conclusion: The present study concluded that incidence of nosocomial infection was 20.71% among patients admitted in wards in a tertiary care hospital. Urinary tract infection was the most common infection. Nosocomial infections were prevalent in males than in females.


Keywords: Nosocomial Infections, Hospital Acquired Infections, Urinary Tract Infection.

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INTRODUCTION

National Nosocomial Infections Surveillance system defines a nosocomial infection as a localized or systemic condition that results from adverse reaction to the presence of an infectious agent (s) or its toxin (s) that was not present or incubating at the time of admission to the hospital.¹ These infections are opportunistic, and microorganisms of low virulence can also cause disease in hospital patients whose immune mechanisms are impaired. Hence, antimicrobial resistance increases in such cases making increase in morbidity and mortality. Nosocomial infections are typically exogenous, the source being any part of the hospital ecosystem, including people, objects, food, water, and air in the hospital.² A prevalence survey conducted under the auspices of World Health Organisation (WHO) in 55 hospitals of 14 countries representing 4 WHO Regions (Europe, Eastern Mediterranean, South-East Asia and Western Pacific) showed an average of 8.7% of hospital patients had nosocomial infections.³ The most common

pathogens are staphylococci, pseudomonas, E-coli, Klebsiella, mycobacterium tuberculi, candida, aspergillus, fusarium trichosporon and malassezia all of these pathogens leads to increased risk of morbidity and mortality.⁴ In the 21st century, nosocomial infections are more alarming due to the reasons of; hospitals serving a large number of people who are sick and have lower immunity, invasive medical procedures, poor hygiene practice, and routine use of antimicrobial agents.⁵ Nosocomial infections are still a major public health problem, because of antimicrobial resistance to pathogens.⁶ The present study was conducted to assess incidence of nosocomial infections among patients admitted in wards in a tertiary care hospital.

MATERIALS & METHODS

The study was conducted among 280 patients to assess incidence of nosocomial infections among patients admitted in wards in

Katuri Medical College and Hospital, Guntur, Andhra Pradesh, India. Before the commencement of the study ethical clearance was taken from the Ethical Committee of the institute and informed consent was taken from the participants after explaining them the study.

Collection of data was done from patients, analysis of infections, and their causes was carried out. Detailed history and physical examination were carried out. Blood and urine specimen among study patients was taken after 48 hours of admission who developed fever after 48 hours of admission and followed till

discharge from the hospital. Bacterial strains were identified with the help of gram staining and biochemical tests. All these study subjects were examined daily to assess the treatment and to detect the confirmation of any new infection. Patient's body temperature was also monitored regularly. The relevant investigations were performed according to the clinical presentation of patients and also after taking opinion from consultants of relevant departments. Data so obtained was evaluated using SPSS-20 and was expressed as percentage and variables as required.

Table 1: Distribution of nosocomial infection among nosocomial positive patients.

| Nosocomial infection | N(%) |
|-------------------------|------------|
| Urinary tract infection | 24(8.57%) |
| Pneumonia | 13(4.64%) |
| Soft tissue infections | 8(2.85%) |
| Gastroenteritis | 5(1.78%) |
| Blood stream infections | 5(1.78%) |
| Meningitis | 3(1.07%) |
| Total | 58(20.71%) |

Table 2: Incidence of Nosocomial infections according to gender

| Gender | Nosocomial infections Present (%) | Nosocomial infections Absent (%) |
|-------------|-----------------------------------|----------------------------------|
| Male(172) | 32(11.42%) | 140(50%) |
| Female(108) | 26(9.2%) | 82(29.28%) |
| Total (280) | 58(20.71%) | 222(79.28%) |

RESULTS

In the present study total 280 patients were included out of which 172 were males and 108 were females. The percentage of subjects with nosocomial infection was 20.71%. Among these most of patients were suffering from Urinary tract infection (8.57%) followed by Pneumonia (4.64%). Nosocomial infections were present in more in males (11.42%) than in females (9.2%).

DISCUSSION

Hospital-acquired infections (HAIs), also known as healthcare-associated infections (HCAI), are infections occurring in a patient in a hospital or other healthcare facility in whom the infection was not present or incubating at the time of admission.⁷ HAI is a major problem for patient safety and has a high impact in terms of morbidity and mortality.^{8,9}

In the present study total 280 patients were included out of which 172 were males and 108 were females. The percentage of subjects with nosocomial infection was 20.71%. Among these most of patients were suffering from Urinary tract infection (8.57%) followed by Pneumonia (4.64%). Nosocomial infections were present in more in males (11.42%) than in females (9.2%).

A large cohort multicentric international study has reported at least one ICU acquired infection in 18.9% of patients, with an incidence ranging from 2.3% to 49.2% across the centers.¹⁰

Mythri H et al, 2014 did a study to find the current status of nosocomial infection, rate of infection and distribution of infection among patients admitted in Medical Intensive Care Unit (MICU) of a District Hospital. Incidence of nosocomial infections in MICU patients was 17.7% (23/130). Of which 34.8% (8/130) was urinary tract infection (UTI) being the most frequent; followed by

pneumonia 21.7% (5/130), 17.4% (4/130) surgical site infection, 13.0% (3/130) gastroenteritis, 13.0% (3/130) blood stream infection and meningitis. The nosocomial infection was seen more in the 40-60 year of age. The male was more prone to nosocomial infections than the female.¹¹

Urinary tract infection (UTI) is the most common and frequent nosocomial infection seen in critically ill patients.^{12,13} Nosocomial pneumonia is the second most frequent nosocomial infection in critically ill patients and represents the leading cause of death from infection acquired in hospital.¹⁴

A study carried out by Koch et al in Norway reported that men present higher overall HAI prevalence than women.¹⁵

The most common reported nosocomial infection in ICUs is urinary tract infection, followed by pneumonia and primary blood stream infection.¹⁶ Infection control strategies such as hand hygiene and wearing gloves; paying attention to well established processes for decontamination and cleaning of soiled instruments and other items, followed by either sterilization or high-level disinfection; and improving safety in operating rooms and other high-risk areas where the most serious and frequent injuries and exposures to infectious agents can resolve the problem to a major extent.¹⁷

CONCLUSION

The present study concluded that incidence of nosocomial infection was 20.71% among patients admitted in wards in a tertiary care hospital. Urinary tract infection was the most common infection. Nosocomial infections were prevalent in males than in females.

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