ORIGINAL ARTICLE

Frequency and Etiology of Nosocomial Infections in Medical Unit-I, Nawaz Sharif Social Security Teaching Hospital Lahore

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ABSTRACT

Objective: To assess the frequency of nosocomial infection in patients admitted to medical unit-I Nawaz Sharif Social Security Hospital Multan Road Lahore and to determine the etiological factors in such patients.
Study design: Observational Study
Place & duration of study: Medical Unit-I Nawaz Sharif Social Security Hospital Multan Road Lahore Pakistan from January 2010 to December 2010.
Methods: All patients above 12 years of age admitted in Medical Unit-I for more than 48 hours and developed clinical evidence of infection that did not originate from patients' original diagnosis at the time of admission, were included in the study.
Results: During the study period, 135 out of 1197 patients acquired nosocomial infection. The frequency of nosocomial infection was 11.278%. Skin infection (Branulitis at site of intravenous canula) was 59(43.703%), Respiratory tract infection was seen in 23(17.037%), urinary tract infection in 31(22.962%) and blood stream infection in 11(8.148%) patients. Other infections we identified were 11(8.148%) in soft tissue, wound and gastrointestinal tract infections.
Conclusion: Patients admitted in Medical unit-I are at more risk of acquiring nosocomial infection from different sources. It is suggested that proper nursing care, sterilization and disinfection of instruments and equipment and careful handling of invasive
Procedures are the best tool to control these life threatening infections.
Keywords: Medical Unit-I (M1), Nosocomial infection, Hospital acquired infection

INTRODUCTION

Nosocomial infection is defined as an infection which develops 48 hours after hospital admission or within 48 hours after being discharged[1] that was not incubating at the time of admission at hospital[2]. Patients admitted to the Medical Unit-I (M1) have been shown to be at particular risk of acquiring nosocomial infection with a prevalence rate as high as 11.248%[3]. The nosocomial infections are caused by bacterial, viral and fungal pathogens. The most common pathogens are staphylococci, pseudomonas, E-coli, mycobacterium tuberculi, candida, aspergillus, fusarium, trichosporon and malassezia[4]. All are associated with increased morbidity and mortality. Precautions to prevent nosocomial infection in Medical Unit-I (M1) include use of hand hygiene before and after contact with patient and respiratory devices[5], aseptic technique during catheter insertion and care, and prompt removal of catheters that are no longer essential[6]. The rationale of this study was to determine the frequency and pattern of nosocomial infection in patients admitted to our Medical Unit-I (M1) and to detect the etiological agent in such patients.

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PATIENTS AND METHODS

This hospital based observational study was conducted from January 2010 to December 2010 in Medical unit-I at Nawaz Sharif Social Security Teaching Hospital Multan Road Lahore. All patients who were above 12 years of age, admitted in Medical unit-I for more than 48 hours with different complaints and presentations and developed clinical evidence of infection that did not originate from patient's original admitting diagnosis, were included in the study. These patients were admitted in M-I through OPD or Emergency department of the hospital. Patients admitted in M-I for less than 48 hours were not included in the study. A performa was designed and used for data collection. A detailed history of patients was taken and thorough clinical examination was performed. Patients were examined on daily basis to assess the treatment response and to detect the evidence of development of any new infection. The temperature chart was also maintained and updated regularly. All the routine investigations such as complete blood picture, blood sugar level, urine analysis and chest radiograph were also done. The

relevant investigations were performed according to the clinical presentation of patients. The frequency was assessed by number of patients who acquired infection; the pattern was determined by the type of acquired infection while etiological agents were assessed by determining the pathogens or sources responsible for infection. Frequencies, percentages, Mean±SD were calculated by entering, saving and analyzing the data in SPSS version 12.0.

RESULTS

During the study period, 135 out of 1197 patients acquired nosocomial infection. The frequency of nosocomial infection was 11.278%. Skin infection (Branulitis at site of intravenous canula) was 59(43.703%), Respiratory tract infection was seen in 23(17.037%), urinary tract infection in 31(22.962%) and blood stream infection in 11(8.148%) patients. Other infections we identified were 11(8.148%) in soft tissue, wound and gastrointestinal tract infections. We send the appropriate samples from the involved area (blood culture, urine culture, sputum culture, branula catheter, Foleys catheter) to identify the possible organisms. In majority of samples we failed to identify the possible organism because the microbiology section of the hospital was not in proper order. However in a few samples we found the organisms which were E Coli in urinary tract infections, Staphylococcus aureus in branulitis, staphylococcus epidermidus in skin infections (bed sore), pneumococcus, pseudomonas and klebsiala in respiratory tract infection. In blood culture of a few patients we identified enterococcus. No organism was identified in stool culture of patients who developed diarrhoea 48 hours after hospital admission.

DISCUSSION

Admitted patients in Medical unit-I are at a higher risk of nosocomial infection due to multiple causes including disruption of barriers during venous catheterization (branula insertion), urinary bladder catheterization and wound management (bed sores)[7]. The most common nosocomial infection in medical unit-I is Branulitis , urinary tract infection, followed by pneumonia and primary blood stream infection[8]. Common infections detected in our study were Branulitis, catheter-related urinary tract infection, respiratory tract infection, bloodstream infection, wound infection and gastrointestinal and soft tissue infections. The frequency of nosocomial infection reported in current study was 11.27%. Branulitis at site of intravenous catheterization is the most common and frequent nosocomial infection seen in M-I patients, 59(43.703%). In our study 31 (22.962%) patients were diagnosed to acquire urinary tract infection. The source of nosocomial UTIs was placement of Foley's catheter using unsterilized techniques. Richards and colleagues reported in the National Nosocomial Infections Surveillance System (NNIS) database that UTI was responsible for 20-30% of nosocomial infections in medical/surgical ICUs[8]. Finklestein and colleagues determined an incidence of 10–14% among 337 patients in a single Israeli ICU[13]. Rosser and colleagues found that catheterization and age (more than 50 years) were independent factors associated with the development of nosocomial UTI[14]. Nosocomial pneumonia is the second most frequent nosocomial infection in critically ill patients[15], and represents the leading cause of death from infection acquired in hospital[15]. A study conducted in Brazil[20] has shown that Klebsiella pneumoniae is also emerging bloodstream infection while another study showed that it is among the top ten pathogens that cause bloodstream infections in United States and Canada[21].

CONCLUSION

From this observational study, we concluded that the patients admitted in M-I of Nawaz Sharif Social Security Teaching Hospital are at risk of acquiring nosocomial infection. The common nosocomial infections we identified in our study were nosocomial pneumonia, urinary tract infections (UTIs) and blood stream infections. We recommend that education and awareness among health care workers as well as adherence to standard guidelines for prevention of nosocomial infection should be used to reduce frequency of nosocomial infection in patients of M-I.

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