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ORIGINAL ARTICLE

Effect of Infectious Diseases Specialist Consultation on the Management and Outcome of Patients in a Public Sector Hospital

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ABSTRACT

Aim: To assess the effect of infectious diseases specialist consultation on the management and outcome of patients in a public sector hospital.

Materials and Methods: This was a prospective cohort study in which a total of 313 patients were enrolled. This study was conducted in Dr Ruth Km Pfau Civil Hospital Karachi. The study duration was 6 month from 1st January, 2023 to 30 June, 2023. Data were collected from the medicine, surgery and allied departments of Civil Hospital Karachi by the study investigators themselves. For statistical analysis we used SPSS Version 25.

Results: We included a total of 313 patients in our study, with a mean age of 52.31±10.51 years and an average length of stay of 13.04±5.50. These patients were distributed across various departments, with 91 (29.1%) from medicine, 110 (35.1%) from surgery, and the remaining 112 (35.8%) from other allied departments. The majority of patients, 63 (20.1%), were diagnosed with bacteremia, while 52 (16.6%) had urine infections, and 56 (17.9%) experienced urinary tract infections (UTI). Other diagnoses included Ventilator-associated pneumonia/hospital-acquired pneumonia (17.9%), Mixed infections (3.2%), Necrotizing Fasciitis (11.2%), Peritonitis (9.6%), Pancreatitis (2.6%), Surgical Site Infections (SSI) (6.4%), Diabetic foot infections (4.5%), Osteomyelitis (4.8%), and Meningitis (3.2%) respectively. Patients were categorized based on the etiology of infection, revealing that 14 (4.5%) patients had unexplained fever. Additionally, malaria was found in 21 (6.7%) patients, Dengue in 32 (10.2%), Tuberculosis in 27 (8.6%), ATT-induced hepatitis in 9 (2.9%), Multidrug-Resistant Organisms (MDROs) in 148 (47.3%), Methicillin-resistant Staphylococcus aureus (MRSA) in 49 (15.7%), Fungal infections in 11 (3.5%), and Viral infections in 2 (0.6%). Regarding outcomes, 229 (73.2%) patients exhibited clearance of bacterial or fungal cultures, 13 (4.2%) showed no disability at the time of discharge, 229 (76.7%) demonstrated improvement in signs and symptoms, and mortality occurred in 1 (0.3%) patient.

Conclusion: It was concluded that consulting with experts in infectious diseases has a major impact on patient management and results.

Keywords: Infectious Disease specialist, management, consultation.

INTRODUCTION

Inpatient management of infectious diseases represents a significant portion of healthcare activities worldwide.(1) Various factors contribute to the prominence of infectious diseases in hospital settings, and their sequelae (consequences or complications) often necessitate comprehensive and specialized care.(2) Morbidity (the prevalence of a disease) and mortality (death rate) associated with infectious diseases can indeed be high, particularly in low- and middle-income countries (LMICs) like Pakistan.(3) Global antimicrobial resistance is growing and poses a public health threat. (4) Patients with infections caused by multidrug resistant bacteria have a higher risk of poor outcomes and death compared to patients with nonresistant bacteria.(5) An infectious diseases consultant plays a crucial role in the management of infections, especially in reducing inappropriate antibiotic use and minimizing morbidity and mortality.(6) Consulting with infectious diseases specialists (IDC) has been linked to enhanced clinical outcomes in patients with Staphylococcal aureus bacteremia. This association is evident through reduced mortality rates, decreased rates of treatment failure, improved adherence to guidelines, a lower likelihood of antimicrobial resistance development, an increased probability of identifying a removable focus of bacteremia, and a higher probability of patients receiving appropriate empiric and directed antimicrobial therapies for an appropriate duration.(7-11)

Global antimicrobial resistance (AMR) is indeed a growing and concerning issue that poses a significant threat to public health.(4) Antimicrobial resistance occurs when microorganisms such as bacteria, viruses, fungi, and parasites evolve and develop resistance to the drugs that were designed to kill them or inhibit their growth.(12) This resistance makes the standard treatments ineffective, leading to the persistence and spread of infections.

Seeking infectious diseases specialist consultation in a public sector hospital is grounded in the need for specialized expertise in the diagnosis and management of infectious diseases. This collaboration can lead to improved patient outcomes, optimal use of resources, and enhanced infection control measures within the healthcare system.

Objective: To assess the effect of infectious diseases specialist consultation on the management and outcome of patients in a public sector hospital.

MATERIALS AND METHODS

Study Design: prospective cohort study.

Study Setting: Department of medicine, surgery and allied department of Civil Hospital Karachi Pakistan.

Duration of the Study: Duration of the study was 6 month (1st January, 2023 to 30 June, 2023).

Inclusion Criteria:

- Patient hospitalized for >2 days of all age group on whom ID consults were sought from department of medicine, surgery & allied departments..

Exclusion Criteria:

- Patients consulted by ID but stay was <2 days.
- Consults for infection control point of view
- COVID-19 patients because COVID-19 patients are primarily managed by the ID dept. itself. Hence a call for ID opinion in such patients is not applicable.
- Consults with no role of ID specialists.

- Informal ID consults taken on telephone or email without direct contact with patient.

Methods: This prospective cohort study took place in the Dr Ruth KM Pfau, Civil Hospital, Karachi from 1st January, 2023 to 30 June, 2023, following the approval of the hospital's ethical committee. Data were collected from the medicine, surgery and allied departments of Civil Hospital Karachi by the study investigators themselves who used structured proforma to collect data on patients age, gender, type of infections, reason for ID consultation, antibiotic optimization including dose and duration of antibiotics, any adjustment for drug-drug interaction, renal and hepatic adjustment, allergy from antimicrobial and suitable alternate options, dual coverage and unnecessary combinations, days of hospital stay and outcome of patient.

For statistical analysis we used SPSS Version 25.

RESULTS

We have enrolled a total of 313 patients with mean age of 52.31±10.51 years and mean length of stay was 13.04±5.50 (Table 1). The patients were of different departments such as 91(29.1) patients were from medicine, 110(35.1%) were from surgery and the remaining 112(35.8%) were from other allied departments (Table 3). Table 2 and graph 1 shows the ID diagnosis of the 313 patients receiving antibiotics in which most of the patients 63(20.1%) were suffering from bacteremia, 52(16.6%) suffering from urine infection, 56(17.9%) from UTI. The 56 (17.9%), 10(3.2%), 35(11.2%), 30(9.6%), 8(2.6%), 20(6.4), 14(4.5%), 15(4.8%) and 10(3.2%) patients were suffering from Ventilator associated pneumonia/hospital acquired pneumonia, Mixed, Nec Fascitis, Peritonitis, Pancreatitis, SSI, Diabetic foot infection, Osteomyelitis and Meningitis respectively. The patients were distributed on the basis of etiology of infection and it was found that about 14(4.5%) patients had unexplained fever. Malaria were found in 21(6.7%) patients. Dengue 32(10.2%), Tuberculosis 27(8.6%), ATT induced hepatitis 9(2.9%), MDROs 148(47.3%), MRSA 49 (15.7%), Fungal 11(3.5%) and Viral 2(0.6%) (Table 4). We found in term of outcomes that 229(73.2%) patients shows clearance of bacterial or fungal cultures, 13(4.2%) shows No disability at the time of discharge, 229 (76.7%) patients shows Improvement in signs and symptoms and mortality was found in 1(0.3%) patients (Table 5).

Table 1: Mean age and Length of stay of all enrolled Patient (n=313)

Variables	Mean±SD
Age (Years)	52.31±10.51
Length of stay (days)	13.04±5.50

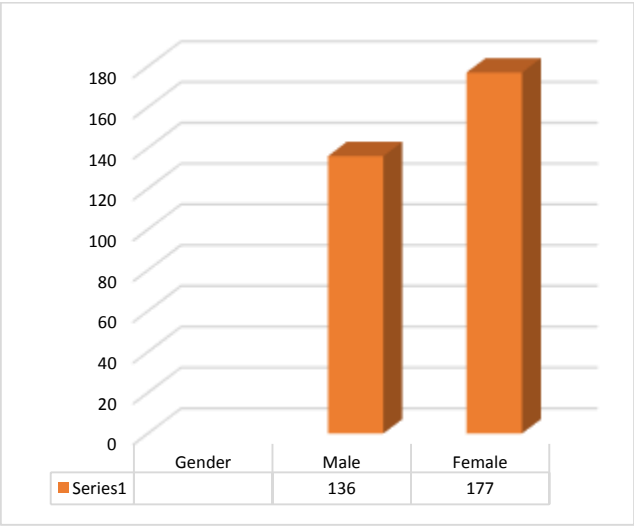

Fig 1: Bar graph showing gender distribution

Table 2: Distribution of patients on the basis of infection sites (n=313)

Infection sites	Frequency	Percentage
/Bacteremia	63	20.1
/UTI	52	16.6
Ventilator associated pneumonia/hospital acquired pneumonia	56	17.9
Mixed	10	3.2
Peritonitis	35	11.2
Nec Fascitis	30	9.6
Pancreatitis	8	2.6
SSI	20	6.4
Diabetic foot	14	4.5
Osteomylits	15	4.8
Meningitis	10	3.2
Total	313	100.0

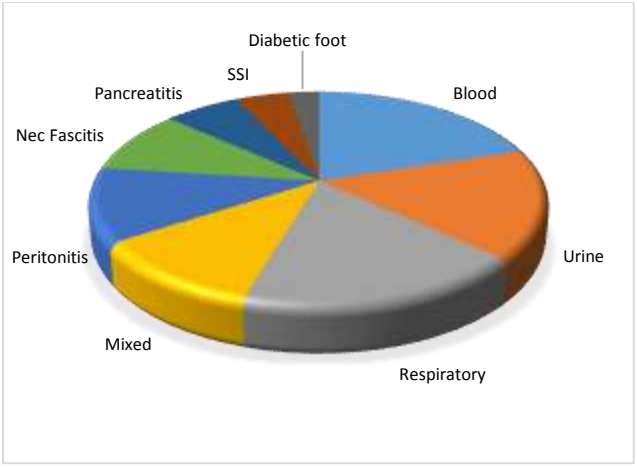

Fig 2: Shows the ID diagnosis

Table 3: Distribution of infants on the basis of gender and departments (n=313)

Gender	Frequency	Percentage
Male	136	43.5
Female	177	56.5
Department		
Medicine	91	29.1
Surgery	110	35.1
Other Allied Department	112	35.8

Table 4: Distribution of patients according to Etiology of infections (n=313)

Etiology of infections	Frequency	Percentage
Unexplained fever	14	4.5
Malaria	21	6.7
Dengue	32	10.2
Tuberculosis	27	8.6
ATT induced hepatitis	09	2.9
MDROs	148	47.3
MRSA	49	15.7
Fungal	11	3.5
Viral	2	0.6
Total	313	100

Table 5: Distribution of patients on the basis of patient outcome (n=313)

Improvement in signs and symptoms	Frequency	Percentage
Yes	229	76.7
No	84	23.3
Disability at time of discharge		
Yes	13	4.2
No	300	95.8
Clearance of bacterial or fungal cultures	Frequency	Percentage
Yes	240	76.7
No	73	23.3
Mortality		
Yes	1	0.3

DISCUSSION

Infectious diseases (ID) specialists play a crucial role in the management and outcome of patients with infectious diseases in public sector hospitals. Their expertise is particularly valuable in complex cases where the diagnosis, treatment, and prevention of infectious diseases require specialized knowledge. The main aim of the present study was to assess the effect of infectious diseases specialist consultation on the management and outcome of patients in a public sector hospital. As stated by Rami Waked et al.[13]) the consultations aimed at diagnosis in 29% of cases, therapy in 41% of cases, both diagnosis and therapy in 21% of cases, and prophylaxis in 9% of cases. Infectious disease consultations were provided at a rate of 4.9 consultations per 100 hospitalized patients. The overall results was so good in term of management of infectious diseases. Numerous scholarly studies delineate the significance of the tasks and actions performed by ID consultants within the hospital.[14, 15] They are crucial in the diagnosing process, the best way to utilize antibiotics, and the avoidance of infections in specific groups. In the present study the patients have different infection site such as blood, urine, respiratory, Mixed, Peritonitis, Nec Fascitis, Pancreatitis, SSI and Diabetic foot infection. The prognosis for a blood infection depends on various factors, including the speed of diagnosis and treatment, the type of microorganism causing the infection, and the overall health of the individual. Managing and dealing with infection involves identifying and addressing various risk factors to prevent their occurrence or minimize their impact. Healthcare consultants play a crucial role in this process. So in the present study antibiotics were given in such a way that minimize the infection and in 76.7% patients the Improvement in signs and symptoms was found as outcomes. In the present study we also found disability at time of discharge in very minor patients. The clearance of bacterial or fungal cultures also give good results upon consultation. And the mortality rate was 0.3%. So it means that consultant deals the patients in a good way and manage the patients in a better way that gives us a good results and improve the quality of life of patients. Kristel Marquet and colleagues present findings in a systematic review and meta-analysis demonstrating that the improper utilization of empiric antibiotics is linked to a 30-day increase in hospital mortality in severe infections.[16] Therefore, the timely engagement of Infectious Diseases (ID) consultants is correlated with enhancements in the appropriate prescription of antibiotics, aligning with national or international treatment guidelines, in comparison to cases without ID consultations.[17, 18] ID specialists contribute significantly to the development and implementation of infection prevention and control measures.[19] They work to minimize the risk of healthcare-associated infections, especially in settings where patients may be immunocompromised or undergoing complex medical procedures. ID specialists are trained to manage complicated and difficult-to-diagnose infectious diseases.[20] Their expertise is invaluable when dealing with patients who may have multiple medical conditions or who present with atypical symptoms. The early involvement of ID consultation brings a wealth of expertise to the management of infectious diseases, positively impacting patient outcomes, reducing hospital stays, optimizing antibiotic use, and promoting cost-effective and efficient healthcare delivery.

CONCLUSION

It was concluded that seeking consultation from infectious diseases specialists significantly influences the management and outcomes of patients. Further research is advised to gain a deeper understanding of this impact.

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