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Analysis of Antibiotic Dose Prescription Patterns Used in Surgical ICU in Tertiary Hospital

[1]Zorberto Drivoy, MD. Division of Medicine, Clinical Pharmacology, ISRL.

Corresponding Author: Zorberto Drivoked, MD. Division of Medicine, Clinical Pharmacology, ISRL.

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Abstract

Introduction: This study aimed to assess Antibiotic prescription patterns study in surgical intensive care unit.

Materials and methods: This was a prospective, observational study of antibiotic prescribing patterns at admission into the surgical ICU.

Results: The prescriptions of 100 consecutive patients admitted into the ICU were analyzed. This included 58 male and 42 female patients. Most of the patients admitted in SICU were of the age groups 20-40 years.

Conclusion: In conclusion, our study reveals that antibiotics continue to be widely prescribed in critically ill patients of surgical intensive care unit.

Keywords: Antibiotics, ICU, Patients, Antibiotics

Introduction

Patients admitted into the intensive care units (ICUs) are often prescribed multiple broad spectrum antibiotics at admission as they are more sick, exposed to multiple invasive procedures, and vulnerable to multidrug-resistant pathogens. This not only increases the burden of antibiotic resistance but also exposes patients to the unnecessary side effects of these drugs besides increasing treatment costs. However, these prescriptions are often empiric and based on physician comfort and prior experience, often leading to overuse or misuse of antibiotics. Despite the existence of various guidelines regarding drug usage in ICUs. So the aim of this study was to access Antibiotic prescription patterns study in surgical intensive care unit.

Materials and Methods

The prescription data on 100 consecutive patients at admission into the surgical ICU was audited. Patients of all age of either gender getting admitted in the surgical ICU during the study period, who have been prescribed with antibiotics and were willing to participate, were included in the study. Patients in which the antibiotics were not prescribed and those were not fulfilling the criteria as WHO defined for drug utilization study were excluded. The study was conducted over a period of 2 months from May 2023 June 2023. During this period, all the included patients were followed up for their entire duration of stay in surgical ICU.

Baseline demographic variables on all patients, such as name, age, gender, hospital number, clinical diagnosis were recorded. Other variables, such as duration of ICU admission, the total number of drugs prescribed on the day of admission, diseased in which admitted, mortality, duration of ICU stay and the total number of antibiotics prescribed were noted.

Standard data entry format was designed as per WHO guidelines and used to enter all the patient details collected during rounds. The prescriptions were individually screened to assess the prescribing pattern of antibiotics. Various drug utilization metrics were analyzed in accordance with the World Health Organization Anatomical Therapeutic and Chemical Classification/ Defined Daily Dose (WHO ATC/DDD) methodology.

Statistical analysis

Data was expressed as Mean ± SD. All the data were entered into a master chart using a Microsoft Excel sheet and subjected to statistical analysis. All the analyses were carried out using SPSS software. A P-value < 0.05 was considered statistically significant.

Results

The prescriptions of 100 consecutive patients admitted into the ICU were analyzed. This included 58 male and 42 female patients. Most of the patients admitted in SICU were of the age groups 20-40 years.

Table 1: Age wise Male and Female data.

		Number	Percentage
Gender	Male	58	88%
	Female	42	42%
Age Group	Mean ± SD	47.21±17	
	< 20	15	15%
	20 – 40	35	35%
	41- 60	28	28%
	61-80	20	20%

Age wise distribution of the patients were analyzed and it was found that 28% of the prescriptions were in the age group belongs to 20-40, followed by 25% in the age group of 61-80 years, 24% in the age group of 41-60 years, and 13% in the age group of < 20 years. The mortality rate was 31% in surgical intensive care unit. 69% patients were transferred to different wards of the hospital. The mortality rate was high before 7 days (67.7%) as compared to after 07 days (32.25%). The average duration of stay in surgical ICU was 7.18 days and average number of drugs prescribed was 6.2. The average duration of antimicrobials including all prescribed antibiotics to 100 surgical ICU patients was 6.97. There were 16(16%) single antibiotic prescriptions, 36 (36%) prescription contained 2 antibiotics, 45 (45%) prescriptions contained 3 antibiotics and 03 prescriptions contained more than 3 (3 %) antibiotics.

Discussion

In this study number of antibiotics prescribed was compared with gender, age and duration of treatment and it was found that most of male patients were prescribed with three and two antibiotics in each prescription and its statistically significant (P<0.05) in

compare to one and more than three antibiotic prescriptions.

Conclusion: In conclusion. Antibiotic monotherapy is sufficient for most infections. Antibiotics may be combined to prevent the emergence of resistant bacteria at the infection site by rapidly reducing the bacterial inoculums, but this may increase selective pressure on the commensal flora.

References

1. G.C. Agu, M.O. Efuntoye, B.T. Thomas and A.A. Adegbulu. Lactic Acid Bacteria and Antibiotics: A Comparative Study of Their Antibacterial Activities. International Journal of Microbiological Research 4 (3): 234-240, 201
2. Meyer E., D. Jonas, F. Schwab, H. Rueden, P. Gastmeier and F.D. Daschner, 2003. Design of a surveillance system of antibiotic use and bacterial resistance in German intensive care units (SARI) Infection, 31(4):208 215
3. Weber RJ, Kane SL, Oriolo VA, Saul M, Skledar SJ, Dasta JF. Impact of intensive care drug costs: A descriptive analysis, with recommendations for optimizing ICU pharmacotherapy. Crit Care Med. 2003;31:17–24.
4. Hartmann B, Junger A, Brammen D, Röhrig R, Klasen J, Quinzio L, et al. Review of antibiotic drug use in a surgical ICU: management with a patient data management system for additional outcome analysis in patients staying more than 24 hours. Clin Ther. 2004;26:915–24.
5. Meyer E, Jonas D, Schwab F, Rueden H, Gastmeier P, Daschner FD. Design of a surveillance system of antibiotic use and bacterial resistance in German intensive care units (SARI) Infection. 2003;31:208–15.
6. Williams A, Mathai AS, Phillips AS. Antibiotic prescription patterns at admission into a tertiary level intensive care unit in Northern India. J Pharm Bioallied Sci. 2011 Oct;3(4):531-6.
7. Paterson DL, Rogers BA. How Soon Is Now? The urgent need for randomized, controlled trials evaluating treatment of multidrug-resistant bacterial infection. Clin Infect Dis. 2010;51:1245–7.
8. Bobek, Mary Beth, et al. "Utilization patterns, relative costs, and length of stay following adoption of MICU sedation guidelines." *Formulary* 36.9 (2001): 664-664.
9. Badar VA, Navale SB. Study of prescribing pattern of antimicrobial agents in medicine intensive care unit of a teaching hospital in Central India. J Assoc Physicians India. 2012 Apr;60:20-3.
10. Tavallaee M, Fahimi F, Kiani S. Drug-use patterns in an intensive care unit of a hospital in Iran: An observational prospective study. Int J Pharm Pract. 2010;18:370–6.
11. Blot S, Vandewoude K, Bacquer D, Colardyn F. Nosocomial Bacteremia Caused by Antibiotic-Resistant Gram-Negative Bacteria in Critically Ill Patients: Clinical Outcome and Length of Hospitalization. Clin Infect Dis. 2002; 34(12): 1600–6.
12. Al-Zakwani I, Al-Thuhli M, Al-Hashim A, Al Balushi KA. Drug utilization pattern in an intensive care unit at a tertiary care teaching hospital in Oman. Asian J Pharm Clin Res 2017;10:194-7.
13. Bergmans DCJJ, Bontena MJM, Gaillard CA, van Tiel FH, van der Geesta S, de Leeuwa PW, et al. Indications for antibiotic use in ICU patients: A one-year prospective surveillance. J Antimicrob Chemother. 1997;39:527–35.