



Irrational Use of Quinolones in Tertiary Care Hospital Karachi, Pakistan

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ABSTRACT

Objective: The antimicrobial drugs especially Quinolones are the top most therapeutics class of drug prescribed in some country like Pakistan in primary and tertiary care hospitals and clinics. The objective of the study was to assess the irrational prescribing practice of quinolones in tertiary care setups of Karachi. **Methodology:** A prospective observational study was conducted for the period of 04 months from November 2019-February 2020, in Public and Private Sector Tertiary Care setups of Karachi. Data was collected from surgical, medical and emergency wards on the basis of World Health Organization prescribing pattern, to evaluate the prescriptions based on Culture sensitivity tests (CST), empirical, targeted, and/or prophylactic therapies. **Results:** Out of total 1000 patients 41.6% patients were from Public and 58.4% were from Private Sector Tertiary Care Hospital. 13.7% of the patients from Public and 24.8% from Private Sector Tertiary Hospitals were prescribed Quinolones after performing their Culture Sensitivity Test. However, 79.8% of the patients were prescribed Quinolones without Culture Sensitivity Test. 36.4% patients were prescribed with empirical therapy, 20.2% with De-Escalation therapy, while 43.4% were prescribed with prophylactic therapy of quinolones. **Conclusion:** Study concluded that some serious efforts are required to avoid the irrational prescribing practice and promote the rational prescribing practice of antibiotics particularly for Quinolones.

Keywords: Irrational, Quinolones, Tertiary care, Prescription, Culture sensitivity

INTRODUCTION

Irrational use of drugs refers to the usage of drugs for the conditions or purposes that they do not suit or they are not appropriate to use [1] or it is the usage of drugs without any proper prescription of the doctor [2]. The most common irrational use of drugs in our society is antibiotics drugs [3], improper use of antibiotics by self-medication, poly pharmacy, over-prescribing and improper culture sensitivity test before prescribing an antibiotic drug [4]. The antibiotics misuse on the other side, microbial resistance and this lead ultimately to decrease drug efficiency in a particular community or family [5].

Antimicrobial drugs especially Quinolones are the top most therapeutics class of drug in some country like Pakistan in primary and tertiary care hospitals and clinics [6,7]. It is a broad spectrum antibiotic drug that is used against both

Gram positive and Gram-negative bacteria [8]. It is highly prescribing agent in Pakistan to treat bacterial infection [9]. Two important Quinolones namely ciprofloxacin and ofloxacin are used for treatment of UTI [10]. Quinolones are frequently prescribed without a Culture sensitivity test (CST) report [11,12]. Ciprofloxacin is also prescribed frequently in osteomyelitis or orthopedic treatment [13]. Irrational use of Quinolones is contributing towards its resistance; many patients suffer resistance due to irrational prescribing and lacking treatment guide lines for infection and disease [14].

METHODS

This prospective observational study was performed to compare irrational prescribing practice of Quinolones, in Public and Private Sector Tertiary Care Hospitals of Karachi, Pakistan. World Health Organization (WHO) guidelines and criteria were considered to evaluate the appropriateness of antibiotics use in different indications. Data of 1000 In-patients, who were prescribed with Quinolones, was collected from surgical ward, medical ward and ER Units. Patients' demographic, prescribing trends on basis of Culture sensitivity test (CST) and type of therapy (empirical, targeted, and/or prophylactic) in different indications were observed.

RESULTS

Medical record of 1000 in-patients from Public and Private Sector Hospitals was evaluated, after having taken written informed consent. Among those who were prescribed with Quinolones, 41.6% were from Public and 58.4% were from Private sector Tertiary Care Hospital. In Public Sector Tertiary Care Hospital, prescription of antibiotics drugs mostly in 18-44 age range and 45-59 age range other hand in private sector mostly prescribed of antibiotic drug in 18-44 age range patient. It was found that majority of the patients who were prescribed Quinolones, were in the age range of 18-44 years both sectors (Table 1).

Table 1 Age-wise distribution of enrolled patients

Age range	Public Sector Hospital	Private Sector Hospital	Total
18-44	192 (46.1%)	416 (71%)	608 (60.8%)
45-59	192 (46.1%)	85 (14%)	277 (27.7%)
60-74	32 (7.69)	61 (10.4%)	93 (9.3%)
Age >75	0	22 (3.76%)	22 (2.2%)
Total	416 (41.6%)	584 (58.4%)	1000 (100%)

It was found that only 13.7% of the patients from Public and 24.8% from Private Sector Tertiary Hospitals were prescribed Quinolones after performing their culture sensitivity test. However, 79.8% of the patients were prescribed Quinolones without Culture sensitivity test (CST) in both, Public and Private Hospitals (Table 2).

Table 2 Prescribing trend of quinolones on basis of Culture Sensitivity Test (CST)

Quinolones prescribed	Public Sector Hospital	Private Sector Hospital	Total
	n (%)	n (%)	n (%)
Quinolones prescribed on basis of CST	57 (13.7%)	145 (24.8%)	202 (20.2%)
Quinolones prescribed without CST	359 (86.3%)	439 (75.2%)	798 (79.8%)
Total	416 (41.6%)	584 (58.4%)	1000 (100%)

It was found that only 20.2% of the patients were prescribed Quinolones as De-escalation Therapy and were prescribed on basis of CST reports (Table 3).

Table 3 Type of therapy for prescribing quinolones

Type of therapy	Public Sector Hospital	Private Sector Hospital	Total
	n (%)	n (%)	n (%)
Empirical therapy	150 (35.9%)	214 (36.6%)	364 (36.4%)
De-Escalation therapy	57 (13.7%)	145 (24.8%)	202 (20.2%)
Prophylactic therapy	209 (50%)	225 (38.5%)	434 (43.4%)
Total	416 (41.6%)	584 (58.4%)	1000 (100%)

DISCUSSION

In this study antibiotics drug mostly prescribed in adult patient in both sectors of tertiary care hospitals Public Sector Tertiary Care Hospital but it differs from the study of Saqib, et al. according to which, consumption of antibiotic drug was mostly in older patient [15]. This may be due to the reason that our study was focused on Quinolones consumption. Frequent prescribing of Quinolones also impact on purchasing budget of patients and/or their attendants. In Pakistan more than 58.7 million persons are passing their lives far below the documented poverty line that means they earn less than 1.25 dollar per day. Considering this situation, additional cost of avoidable medicine is a supplementary economic burden on health care system of Pakistani population [16]. In our study irrational prescribing practice was found in both the settings, but in public sector hospital the situation was found to be more alarming (Tables 2 and 3). There is a strong need to take serious measures to minimize irrational antimicrobial prescriptions. The initiation of bacteriological culture test at the start or as early as possible before the antibiotic use may help in streamlining the therapy from empirical to targeted therapy [16]. Only about 20% of the patients were found to have De-escalation therapy, that is very alarming situation to overcome antimicrobial resistance. Certain factors also influence the prescribing of irrational practices. Other Studies have also shown that there is lacking in the laboratory tests usage in the developing region of the world that is probably linked with the disproportionate usage of the antibiotics [17].

CONCLUSION

The picture of Public Sector Hospital is found worse as compared to Private Sector. This study showed results from tertiary care sector where the resources are more appropriate as compared to primary and secondary sectors. Therefore some drastic steps are required to rational the therapy particularly for Quinolones.

DECLARATIONS

Conflicts of Interest

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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