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Letter to the Editor

Evaluation of antibiotic prescribing in Kabul, Afghanistan

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Antibiotics are the most commonly used drugs which should be prescribed appropriately and with optimum care, otherwise the emergence of resistant organisms will interfere with the treatment result [1]. Antibiotic resistance has become a global concern because resistant bacteria and their resistant gene spread rapidly and commonly. The increase in antimicrobial-resistant infections has led to significant morbidity, mortality and healthcare costs, particularly in low-income countries, which face the double burden of fewer antibiotic choices and higher rates of infectious diseases [2]. Antibiotic resistance will cause ineffective and unsafe treatment, prolonged disease and hospitalization, increased need for new antibiotics, wastage of resources, adverse drug events and will have a serious consequence to patient and society [3]. Inappropriate, Irrational, indiscriminate prescribing, widespread use, overuse and misuse of antibiotic are the most important factors involved in the development of antibiotic resistance [4].

Similar studies in different counties shows that the irrational and overuse of antibiotics are very common. A study in Iran shows high rate of empirical and prophylactic antibiotics use, overuse of vancomycin and third generation cephalosporin [5]. A study in New Delhi, India shows overuse and inappropriate choice of antibiotics for the treatment of acute, uncomplicated respiratory tract infections which are mainly due to virus [6]. Another study in China shows that antibiotics are frequently prescribed in Chinese primary health care facilities, and a large proportion of these prescriptions are inappropriate [2]. Another study in Malaysia shows excessive and inappropriate antibiotic prescribing for self-limiting conditions [7]. A study in Jordan shows higher number of drugs per encounter (2.93) than WHO standards [8]. Another study in Nigeria shows over-prescription of antibiotics, significant use of injections and prescribing by generic name [9].

The problems related to antibiotic resistance, necessitate the rational, controlled and regulated use of antibiotic in all aspects including its prescribing, distribution and administration [10]. As of today, drug use evaluation of antibiotics has not been investigated in Afghanistan. Appropriate antibiotic use is a key strategy to control antibacterial resistance. The first step in achieving this is to identify the major problems in antibiotic prescription in health care facilities. The aim of this study was to evaluate rational use of antibiotic and antibiotic prescribing pattern in Kabul, in accordance with WHO drug use indicator.

Kabul is the capital of Afghanistan, with > 6 million population served by several private and public hospitals, for this study we randomly selected 3 public hospitals and 3 public hospitals which offering services to large population of the community. Prescriptions collected randomly from the pharmacies of the hospitals and were examined to record the information about prescribing indicators and use of antibiotics. It was a retrospective descriptive study with a sample size of 376 prescriptions. The study was carried out over a period from July to August 2017. In each prescription, we analyzed the presence and deficiencies in information of patient, prescriber and the prescribed drugs. Patient's information includes name, age, sex, weight, address, and provisional diagnosis. The prescriber's information covered name, signature, license number, and address. Regarding the prescribed drug, presence or deficiency of the drug strength, dosage form, frequency and route of administration, the number of drugs per prescription and percentage of drugs prescribed by generic name was evaluated. We also studied the readability of the prescription. The data was analyzed on SPSS 16.0.

In this research 374 prescriptions consisting of 1509 drug were evaluated. In 248 (66%) prescription totally 374 antibiotics were prescribed. In 161 (43%) prescriptions one antibiotic, 68 (18.2%) prescriptions two antibiotics and in 19 (5.1%) prescriptions 3 antibiotics were prescribed (average 1.508 antibiotics per prescription). shown in Fig. 1.

Among antibiotics, ceftriaxone was prescribed 68 (18.18%) times, metronidazole 68 (18.18%) times, amoxicillin 64 (17.11%) times, azithromycin 34 (9.09%) times, ciprofloxacin 25 (6.68%) times, cefixime 22 (5.88%) times, levofloxacin 17 times (4.54%), clarithromycin 7 times (1.87), and doxycycline 6 times (1.60%). shown in Fig. 2.

In 132 case (35.29%) parenteral antibiotics were used. Only in 324 prescription (86.63%) date, 148 prescription (39.57%) provisional diagnosis and 360 prescriptions (96.25%) prescriber' signature was present.

Out of 374 prescriptions, in 159 (42.51%) prescriptions parenteral drugs were used. In 54 prescription (35.84%) one parenteral drug, in 52 prescription (32.70%) two parenteral drug was prescribed, in 46 prescriptions (28.91%) three and more parenteral drugs were prescribed.

Regarding completeness of prescription, only in 216 prescription

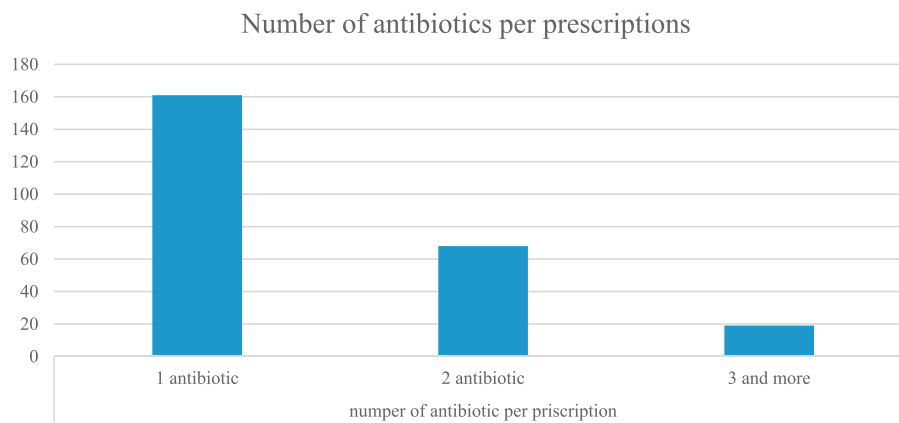


Fig. 1. Number of antibiotics per prescription.

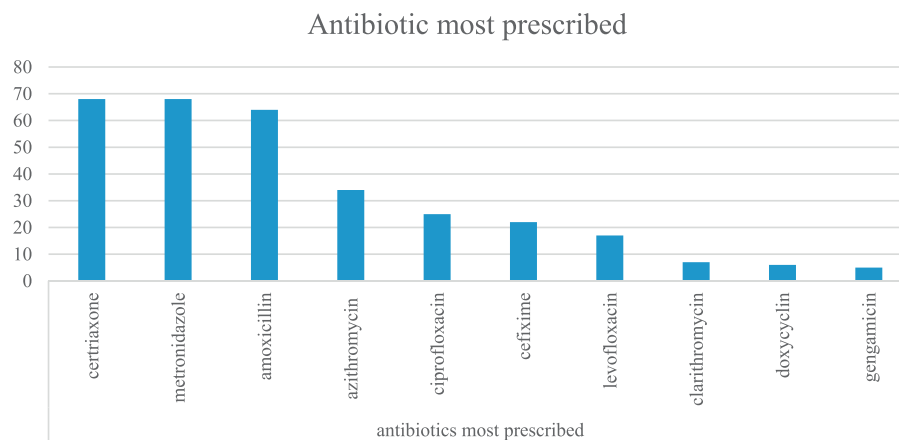


Fig. 2. Antibiotics most prescribed.

(57.75%) route of administration, in 354 prescription (94.65%) dosage form, in 345 prescription (92.24%) strength, in 340 prescriptions (90.9%) frequency of administration, in 328 prescription (87.7%) duration of treatment, and in 12 prescription (3.2%) guide to administration was mentioned.

Regarding to prescriber's characteristics, in 354 prescriptions (94.65%) doctor's name, in 254 prescriptions (67.91%) doctor's qualification, in 353 prescription (94.38%) doctor's phone number, in 285 prescription (76.2%) doctor's address was present, but the license number of doctors was missing in all prescriptions.

Regarding to patient's information, in 355 prescriptions (94.91%) name, in 159 prescriptions (42.51%) age, in 101 prescription (27%) gender, in 4 prescription (1.06%) weight was present, but the patient's address and phone number was missing in all prescriptions.

In this research antibiotic prescribing and combination of antibiotic use was more significantly prevalent in private hospitals than public hospitals ($p > 0.05$). Ceftriaxone, metronidazole and amoxicillin were more significantly prescribed compared to other antibiotics ($p > 0.05$).

The result of our study shows that antibiotics are prescribed widespread and in most cases irrationally. Prescribing parenteral antibiotics and combination of antibiotics are very common, in most cases antibiotics are prescribed with improper dose, duration, and route of administration. Patients do not receive the necessary guidance for right use of their drug. Some antibiotics like ceftriaxone, metronidazole, amoxicillin, ciprofloxacin, azithromycin are used very frequently. So, this widespread antibiotic use will increase the microbial resistance in the future.

Conflicts of interest

There are no conflicts of interest.

Disclosure

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