

Assessment of Antibiotics prescription in Hospitalized Patients at Elobeid Hospital, Sudan

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Abstract:

Objective: This study aimed to assess the pattern of antibiotics usage in medical wards at Elobeid teaching hospital, West Sudan.

Patients and method: This is a descriptive hospital-based study. The data were retrospectively collected from the patient's records. Systemic random sampling was used to select 427 patient's records from the records of patients who were admitted to the medical wards in the year 2008. The records of 250 patients showed antibiotic prescription constituting 58.5% of the selected records. Beside the sociodemographic data, drug data (drug name, drug strength, route of administration and duration of therapy), basis of prescription (empirical or definitive) and other relevant information were collected from the patient's records and analyzed.

Results: A total of 427 patient's records were selected for the study, out of which 250 (58.5%) for whom one or more antibiotic was prescribed were studied. Males were 60% of the patients. The mean age \pm SD of the patients was 50 ± 21 years. The total number of prescribed antibiotics was 397 drugs. Cephalosporins constituted more than one third (34.5%) of the prescribed antibiotics, and penicillins 28.5%. The mean number of antibiotic \pm SD prescribed for each patient was 1.6 ± 0.95 drugs. 148 (37.2%) of the drugs were prescribed in generic name. In 52 (13%) drug prescriptions, the drug strength was not written. In the majority of the records (92.9%), the duration of drug therapy was not stated. Parenteral route of drug administration was prescribed for 50.8% of the antibiotics. The most commonly prescribed antibiotics were ceftriaxone, amoxycillin-clavulanic acid combination, benzyl penicillin (penicillin G), ciprofloxacin, cefuroxime, and metronidazole.

Conclusion: The empirical prescription of antibiotics is a common practice at Elobeid Teaching Hospital; therefore establishment of antibiotics guideline based on local epidemiological data of potential pathogens and their pattern of antibiotics susceptibility should be available.

Key words: Antibiotics, hospitalized patients, medical wards

Antibiotics are among the most commonly prescribed drugs in hospitals, and inappropriate use of these drugs is a global public health concern because of its association with antibiotic resistance¹. The rational use of drugs requires that patients receive medicines appropriate to their clinical needs, in doses that meet their own individual requirements, for an adequate period of time, and at the lowest cost to them and the community². Common examples of irrational drug use include use of antimicrobials for viral infections, over-prescribing (there is "no pill for every ill"),

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multi-drug prescribing (polypharmacy), misuse of drugs, use of unnecessary expensive drugs, overuse of antibiotics. Such practices result in waste of resources, inappropriate patient demand, antimicrobial resistance and increased drug-related morbidity and mortality³. Physicians should have adequate relevant knowledge of both the properties of chemotherapeutic agents, and the pathogens that are likely to cause infection in the locality and their susceptibility or resistance profiles to commonly available antibiotics⁴. In addition to development of resistance, superinfection may result from overuse or prolonged administration of broad spectrum antibiotics. Many wide spectrum antibiotics are recognized to cause death of

the normal intestinal and vaginal flora. Fungal infections are linked to overuse of such expensive antibiotics as cephalosporins⁵.

Elobeid is the capital of North Kordofan state. Elobeid Teaching Hospital is a teaching hospital which serves as referral centre for patients from North Kordofan states and other neighbouring states like West Kordofan, South Kordofan, and parts of Darfour states. It provides tertiary level health care services, even though a large number of patients by pass the primary and secondary health facilities to obtain care in this hospital. There are 6 medical wards containing 75 beds.

This study aimed to assess the antibiotics prescription in hospitalized patients at the medical wards.

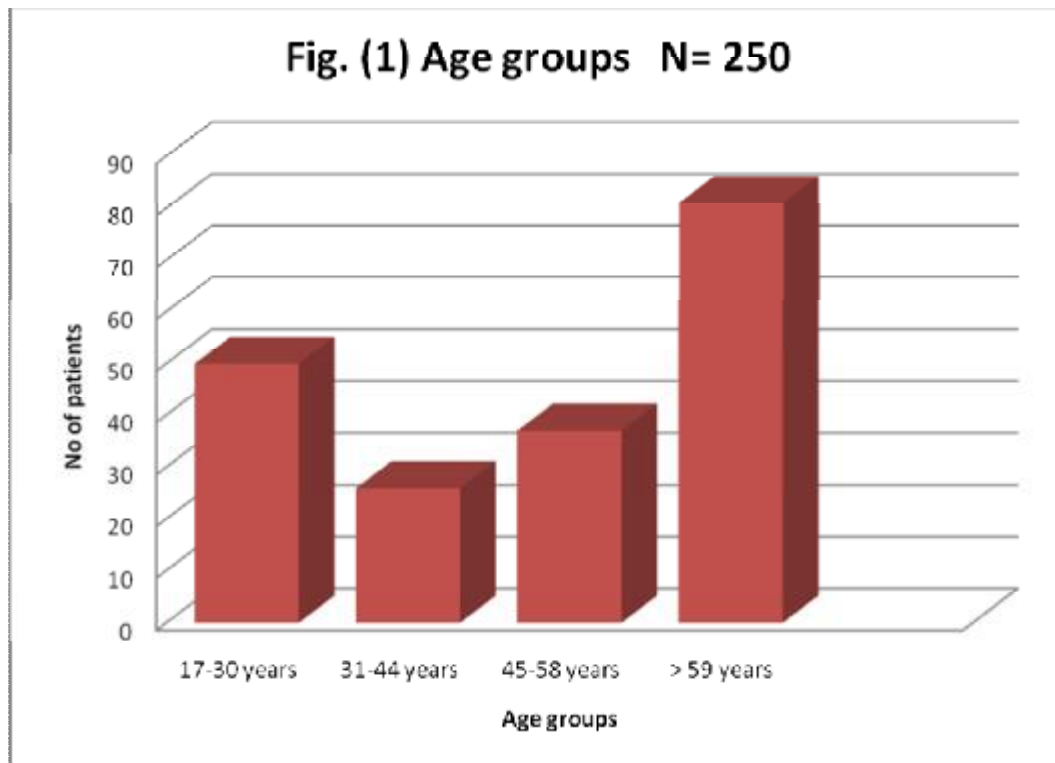
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Results:

A total of 427 patient's records were selected for the study, out of which 250 (58.5%) for whom one or more antibiotic was prescribed were studied. Males were 60% of the patients. The mean age \pm SD of the patients was 50 ± 21 years. The age groups are illustrated in fig. (1).



The total number of prescribed antibiotics was 397 drugs. Cephalosporins constituted more than one third (34.5%) of the prescribed antibiotics, and penicillins 28.5% (Table 1).

The mean number of antibiotic prescribed for each patient was 1.6 ± 0.95 drugs. 148 (37.2%) of the drugs were prescribed in generic name. In 52 (13%) drug prescriptions,

the drug strength was not written. In the majority of the records (92.9%), the duration of drug therapy was not stated. Parenteral route of drug administration was prescribed for 50.8% of the antibiotics.

The most commonly prescribed antibiotics were ceftriaxone, amoxicillin-clavulanic acid combination, benzylpenicillin (penicillin G), ciprofloxacin, cefuroxime, and metronidazole Fig. (2).

Table 1: Classification of prescribed antibiotics

Class of drug	Frequency %
Penicillins	113 (28.5%)
Cephalosporins	137 (34.5%)
Quinolones	37 (9.4%)
Macrolides	34 (8.5%)
Others (sulphonamides, aminoglycosides, tetracyclines, ect.)	76 (19.1%)
Total	397

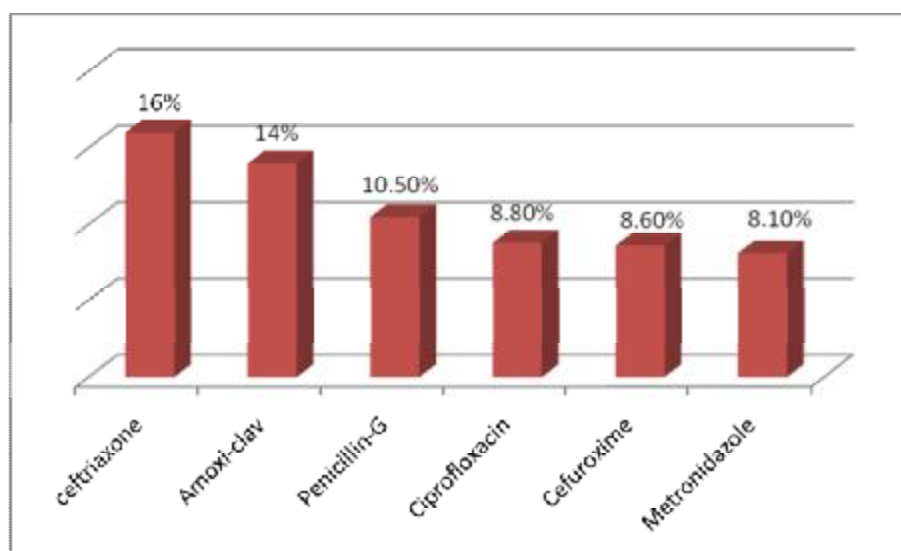


Fig.2: The most commonly prescribed antibiotics N=397

Discussion:

The rise in the use of antibiotics has resulted in increasing health care costs and the emergence of resistance bacteria. Rational use of antibiotics is a key element for a successful strategy against development of resistance to antibiotics⁶. In this study 72% of antibiotics prescriptions were irrational which is a pit high compared to 60% unnecessary prescriptions in Nigeria according to figures gathered by surveys presented to WHO in 2000⁷. While in areas like Nepal the percentage of irrational antibiotics prescription was 26.2%⁷. Cephalosporins (most frequently cefuroxime, and ceftriaxone)

and penicillins (most frequently amoxicillin-clavulanic acid combination) were the most commonly prescribed antibiotic categories with average of 34.5% and 28.5% respectively. These results differ from reports from Jordan where penicillins prescription predominates⁸. Unfortunately the unrestricted usage of antibiotics like the third generation cephalosporins contradicts the WHO expert committee suggestion that a reserve list of fewer antibiotics like the third generation cephalosporins, quinolones and vancomycin should be kept aside for specific indications such as infections caused by organisms

resistant to standard drugs. In this study, patients records show no microbiological investigations (culture) prior to antibiotic prescription and doctors seem to use broad-spectrum antibiotics because they cannot clearly identify the specific pathogen that causes the infection. Parenteral route of administration was prescribed for 50.8% of the antibiotics and this is very high and unjustified pattern of drug usage compared with only 10.4% of parenteral drug administration in a Nigerian teaching hospital⁹. On the other hand prescription in generic names is poor in this study as only 37.2% of the drugs were prescribed in generic names. This is more or less similar to reports from other African countries where generic prescription of drugs is still not a popular practice⁹. In this study the most common prescription errors include omission of drug strength and duration of drug therapy where in almost all prescription orders the duration of drug therapy was not stated. These are major components of inappropriate drug use.

Conclusion:

It is apparent that the empirical prescription of antibiotics is a common practice at Elobeid Teaching Hospital; therefore establishment of antibiotics guideline based on local epidemiological data of potential pathogens and their pattern of antibiotics susceptibility should be available. On the other hand rational use of antibiotics should be

emphasized in every training program as a main strategy to control the increase in drug resistance and to prolong the usefulness of antibiotics. A local antibiotics policy should be established with restriction of drugs like third generation cephalosporins.

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