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Drug Prescribing Pattern in Two Hospitals in Mwanza, Northwest Tanzania

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A retrospective cross-sectional study to evaluate compliance with Tanzanian guidelines, World Health Organization (WHO) guidelines, and various other aspects of drug prescription at Sekou Toure Regional Hospital and Magu Hospital both in Mwanza Region of Tanzania was carried out. In particular, the study was designed to find out whether Tanzania treatment guidelines for malaria, upper respiratory tract infections (URTIs) and diarrhoea were followed. It was aimed at assessing whether prescriptions of antibiotics and injections complied with WHO guidelines. The study analysed 296 prescriptions (108 from Sekou Toure and 188 from Magu Hospitals, respectively) using a structured questionnaire. Results showed generic prescribing was 96.3% at Magu Hospital and 85.2% at Sekou Toure Hospital. Antibiotics prescriptions were 48.4% and 54.6% in Magu and Sekou Toure Hospitals, respectively. In both hospitals, 52.0% of patients treated for malaria were also given antibiotics. For patients treated for URTIs, 39.1% were given antibiotics in addition to other cough remedies. In both hospitals, 72.7% and 15.2% prescriptions for malaria and diarrhoea, respectively, were injections. Fifty percent of prescriptions in both hospitals included injectables and the number of drugs per prescription was four.

Key words: Prescribing pattern, generic and brand drugs, antibiotics, injections

INTRODUCTION

Inappropriate prescribing is known all over the world as a major problem in health delivery [1]. This is more so in developing countries where health budgets are small and 30-40% of the total health budget is spent on drugs [2]. A quarter of the world's population is concentrated in developing countries and has access to only a small proportion of the world's drug production [3]. Irrational prescription and the use of antibiotics, injections and the use of drugs of doubtful efficacy is well documented [4,5]. A manual on "How to investigate drug use in Health facilities" has been introduced [6]. Following the collaboration of the International Network for Rational Use of Drugs (INRUD) and the World Health Organization's Essential Drugs and Medicine policy department (WHO-EDM) provided a methodology for obtaining objective and reproducible measure of the effectiveness and efficiency of drug use [7]. Studies have shown that the pattern of prescription in terms of completeness and rationality is poor [8,9]. The problems encountered included unnecessary prescription of antimicrobials and injections.

METHODS

A descriptive cross-sectional retrospective study was designed to evaluate the drug prescribing pattern at two health facilities in Mwanza, Northwest Tanzania. The study was conducted at Sekou Toure Regional Hospital within the City of Mwanza and Magu District Hospital in Mwanza Region. Drugs prescribed in Outpatient Departments are usually dispensed from hospital pharmacies. Records of prescriptions received from the Outpatient Departments are stored in the pharmacies. A total of 108 prescriptions were randomly selected from a pool kept in the pharmacy store at Sekou Toure hospital and 188 prescriptions were obtained from Magu Hospital. The prescriptions used in the study were issued between July 2009 and June 2010.

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A questionnaire was used to get the required data from the prescriptions.

RESULTS

Out of the 108 prescriptions obtained from Sekou Toure Hospital, 92 (85.2%) prescriptions were in generic names and 16 (14.8%) prescriptions were in brand names (Figure 1). At Magu Hospital, out of 188 prescriptions, 181 (96.3%) prescriptions were in generic names and 7 (3.7%) prescriptions were in brand names (Figure 1). The association between the use of generic and brand names in the two hospitals was significant (*p=0.00 Pearson Chi-square test*). At Sekou Toure Hospital, 59 prescriptions (54.6%) contained antibiotics while at Magu Hospital, 91 (48.4%) of the prescriptions had antibiotics (Figure 2). There was no significant difference in the use of antibiotics in the two hospitals (*p= 0.16 Pearson Chi-square test*). Injections were found in 54 (50%) out of 108 prescriptions at Sekou Toure Hospital and at Magu Hospital injections were in 94 (50%) out of 188 prescriptions (Figure 3).

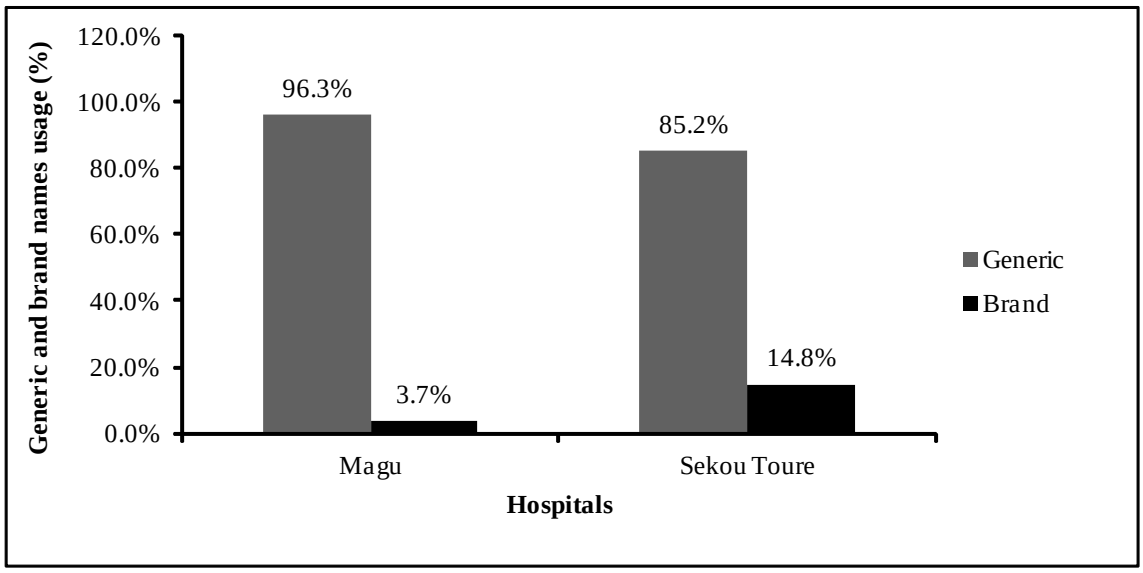

Figure 1. Use of brand and generic names in Sekou Toure and Magu Hospitals.

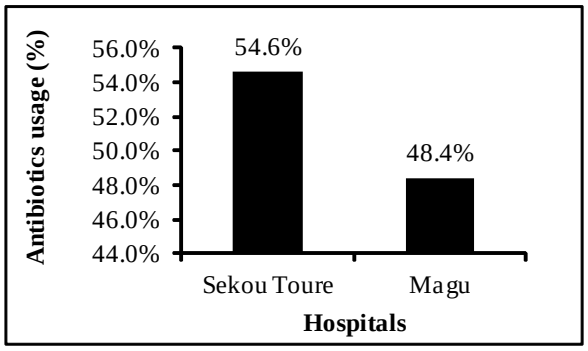

Figure 2. Use of antibiotics in Sekou Toure and Magu Hospitals.

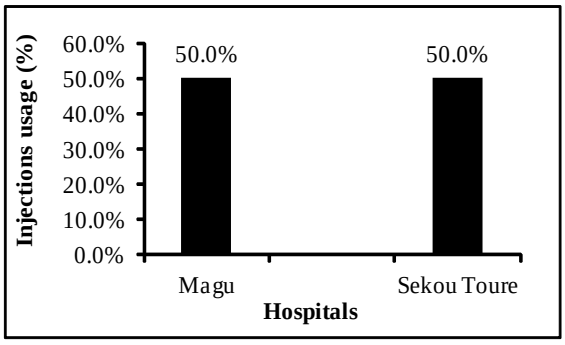

Figure 3. Use of injectables in Sekou Toure and Magu Hospitals.

In this study, it was observed that 52% of the patients with malaria at the two facilities were prescribed antibiotics in addition to antimalarials, while 39.1% of the patients with URTIs in the two facilities were prescribed antibotics in addition to other cough remedies. Further, 8.9% of the patients with diarrhoea had prescriptions which contained antibiotics (Figure 4).

Patients suffering from malaria and were prescribed injections were 72.7%, while those suffering from diarrhoea and were given injections were 15.2% at both hospitals. About 12.1% of the patients suffering from URTIs were given injections. The use of injections for treatment of malaria, URTIs and diarrhoea was significant (Figure 5) (*p= 0.000 Pearson Chi-square test*).

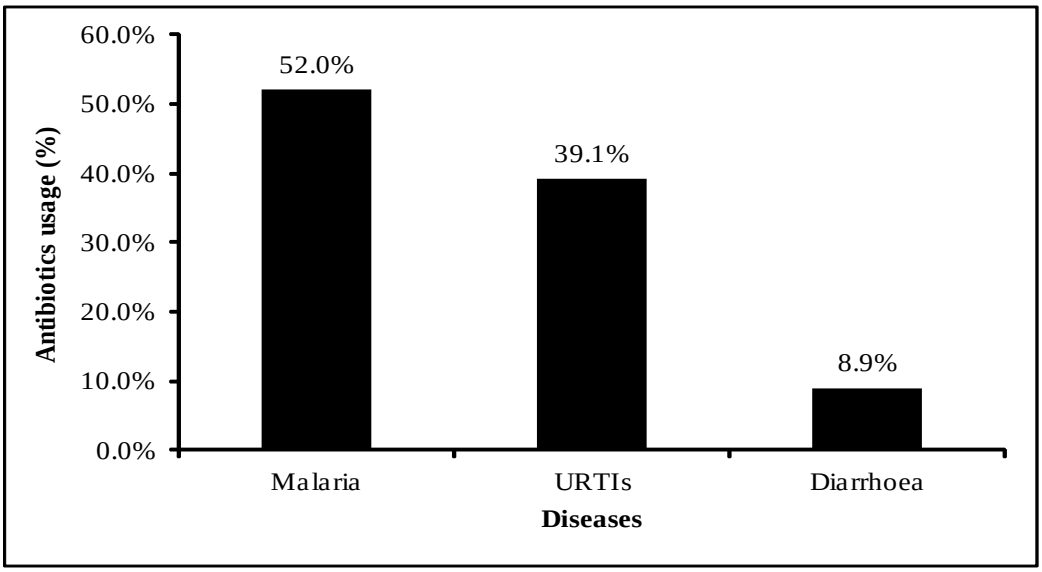

Figure 4. Prescription of antibiotics for malaria, URTIs and diarrhoea in Sekou Toure and Magu Hospitals.

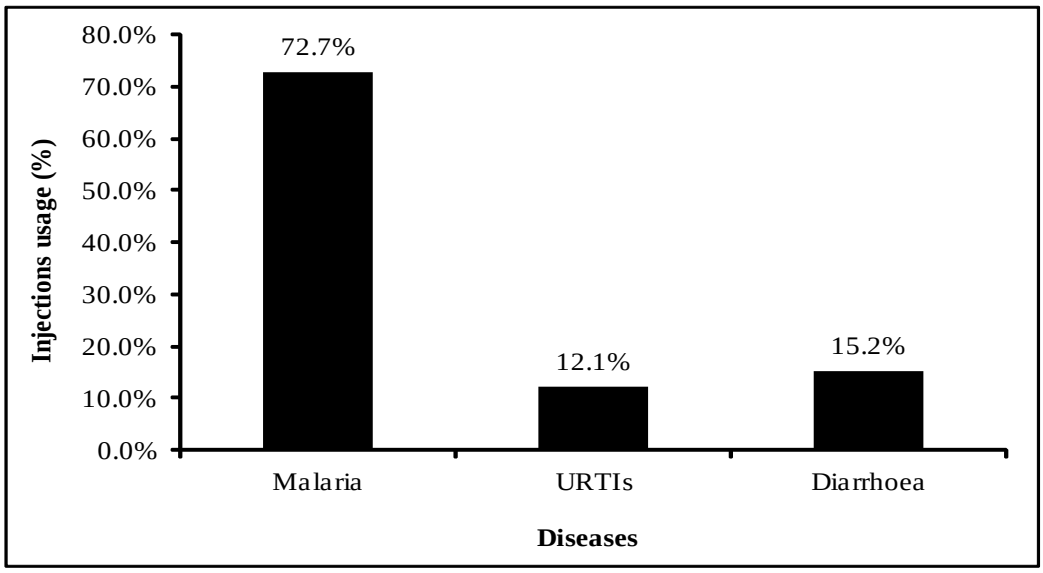

Figure 5. Use of injections in malaria, URTIs and diarrhoea in Sekou Toure and Magu Hospitals.

The number of drugs prescribed in each prescription for all the patients was also determined. The results are presented in Table 1. A total of 384 drug encounters (average 4 drugs per prescription) were observed at Sekou Toure Hospital and 652 drug encounters (average 3.5 drugs per priscription) were seen at Magu Hospital.

Table 1: Drug encounters at Sekou Toure and Magu Hospitals

Hospital	Number of prescriptions	Number of drugs	Average number of drugs per prescription
Sekou Toure	108	384	4
Magu	188	652	3.5

DISCUSSION

A prescription provides an insight into a prescriber's attitude to the disease being treated and the nature of health care delivery system in the community [10]. This study has provided a better understanding of the prescribing practices in the two hospitals being studied. World Health Organization recommends the use of generic names when prescribing drugs. Drugs that go by generic names are cheaper than those that are sold in brand names in the market. Prescribers at Sekou Toure and Magu Hospitals appear to conform to WHO recommendations quite well as more than 85% of the prescriptions were in generic names. The high generic prescribing observed in this study is in contrast to the findings in Nigeria where generic prescribing was found to be low [11,12,13]. Adherence to use of generic names will greatly reduce the health budget on drugs and the funds thus made available may be used to improve other services.

Literature has shown a linear relationship between the number of drugs taken, poor patient compliance and incidence of new hospital admissions due to adverse drug reactions and inappropriate medication use [14,15,16]. In this study, average drug encounters per prescription were 4 at Sekou Toure Hospital and 3.5 at Magu Hospital. These observations indicate that the prescribers at these hospitals may be prescribing more drugs per prescription than the WHO reference values of 1.6-1.8 [11]. Multiple drug prescribing observed in this and other studies increases the risk of drug interactions and affects compliance. Other problems associated with polypharmacy are drug-food interaction and therapeutic duplication errors. Medication adherence can also be adversely affected leading to poor therapeutic outcome.

In this study, the overall use of injections was high (50%) compared to other study conducted in Nigeria where injection use was found to be as low as 4% [14]. Injection use in an era of many blood-borne diseases like hepatitis B and Human Immunodeficiency Virus (HIV) increases likelihood of transmitting these diseases. The use of injections in the treatment of malaria and upper respiratory tract infections was high but in the treatment of diarrhoea it was found to be low. At both hospitals, the use of injections in treatment of diarrrhoea was 15.2%. This is not different from findings observed by other studies and WHO value of 10.1–17.1 [11].

The use of antibiotics at Sekou Toure hospital was 54.6% and that at Magu hospital was 48.4%. This usage is much higher than WHO reference value of 20.0–25.4% [11]. Studies carried elsewhere in developing countries reported figures of 47.5 to 100% of encounters with antibiotics prescriptions [7]. Scientific literature show that large scale inappropriate use of antibiotics can potentially lead to antimicrobial resistance [17] and increase the necessity to use more expensive antibiotics to treat common and life threatening infections.

Patients with malaria who were given antimalarial injections were 72.7%. The use of

injections is considered rather high as many of these patients could have been managed with oral formulations of antimalarials. Fifty two percent of patients with malaria were also prescribed antibiotics in addition to the antimalarial drugs. The use of antibiotics in this case was irrational. This may be an indication that the physician could not rule out the presence of some other infections. The use of antibiotics in the treatment of upper respiratory tract infections was 39.1%. It is quite possible these patients could have been managed with cough mixtures only. About 15% of the patients suffering from diarrhoea were given injections and 8.9% were prescribed antibiotics. The use of injectables could be minimized and instead these patients could have been given oral rehydration salts for treatment of diarrhoea.

CONCLUSION

There was a high awareness of generic prescribing in the two hospitals. Generics are cheaper and hence affordable. In this study, it was observed that polypharmacy was practised and there was high rate of the use of injections. Inappropriate use of injections and antibiotics for treatment of malaria was seen in both facilities. There was inappropriate use of antibiotics for treatment of upper respiratory tract infections and also inappropriate use of injections for treatment of diarrhoea. There is therefore a need for introduction of interventions to improve prescribing practices by training of clinicians on rational drug use. Periodic audit of prescribing practices to assess the success or otherwise of such interventional programmes will be necessary.

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