Management of Malaria by Medicine Retailers in a Nigerian Urban Community

Erhun, W.O.
Osagie A.

Abstract

Malaria is one of the leading causes of sickness and death in Nigeria. A considerable proportion of malaria treatments occur through self-medication via medicines bought from medicine retailers. This study was aimed at determining the knowledge, prescribing and selling practices of medicine retailers in an urban community in Nigeria. Questionnaire was administered to retailers in 230 medicine outlets in the Surulere local government area, Lagos state, Nigeria. The questionnaire focused primarily on the availability and distribution of different anti malarial medicines, retailers' perception of malaria and their response to complaints of the illness from patrons. Moderate correlation (r, $(208) \geq 0.13$, $p < 0.05$) between patrons' symptoms and the prescription of chloroquine revealed that the retailers had a fair knowledge of how to diagnose malaria. We however observed a number of therapeutic challenges, which may be overcome by suitable educational intervention to improve upon the knowledge and treatment practices of medicine retailers in Nigeria.

Key words:
Medicine retailers, Malaria, Knowledge, Anti malarial, Nigeria

<u>Address for correspondence</u>**:** Department of Clinical and Administrative Pharmacy, Niger Delta University, Wilberforce Island. Nigeria. E-mail: mercyerhun@yahoo.co.uk

UNC
SCHOOL OF PUBLIC HEALTH
DEPARTMENT OF
HEALTH POLICY
AND ADMINISTRATION

Management of Malaria by Medicine Retailers in a Nigerian Urban Community

Erhun, W.O.
Osagie A.

Introduction

Malaria control programs rely primarily on prevention and prompt appropriate treatment at peripheral health services such as community health posts and dispensaries to control malaria-related morbidity and mortality (WHO, 1993). A main component of current malaria control strategies is early diagnosis and treatment; this has a significant impact on the severity of the disease and the interruption of its transmission (Espino & Manderson, 2000). However, most early treatments for fever occur through self-medication with shop-bought medicines. (Erhun & Abayomi, 2002); thus proper early diagnosis and treatment of malaria is a challenge especially when patients are of the habit of purchasing medication to suppress symptoms and/or on perceived-need basis. Lay people in malaria-endemic regions frequently have to choose from many over-the-counter anti malarial s requiring them to be able to identify and distinguish between them (Nyamongo, 1999). The lack of information to community members on over-the-counter medicines has led to widespread ineffective treatment of fevers, increased risks of medicine toxicity and accelerating medicine resistance (Marsh et al., 1999). Often times, ill-informed medicine retailers widen benefits derived by patients from malaria control strategies.

This study was designed to determine the knowledge, prescribing and selling practice patterns of retailers in retail medicine outlets and the range of anti malarial medicines stocked, while gaining an insight into the quality of malaria case management in these outlets. We used a Local Government Area in Nigeria as a case study. It is hoped that the information obtained may be useful in developing an intervention package that could improve the selling and prescribing habits of the retailers and consequently the buying patterns of their patrons.

Methodology

The study area used was the Surulere Local Government Area of Lagos state, Nigeria. Surulere Local Government Area is the second largest local government area in the state; its residents are mostly middle-class and low-income earners. The area is noted for its waterlogging and low capillaries, which interfere with easy drainage of water and so contribute to malaria transmission. An initial pre-test was conducted with 20 respondents to assess the appropriateness and lack of ambiguity of the questionnaire, and it was subsequently modified. All 230 visible medicine outlets in the study area were studied, irrespective of whether they were registered or not, as we had earlier observed that patrons did not distinguish between registered and unregistered premises when seeking care in these facilities (Erhun, 2000, unpublished). The questionnaire, administered to retailers, highlighted pertinent areas such as the number and list of anti malarial s stocked, the dosage regimens in which each of the medicines were usually stocked and administered, the perception of the retailers as to how they recognized/diagnosed malaria.

The purpose of the study was carefully explained to the retailers and their consent individually obtained. The questionnaire was either self-administered or administered by the researcher, depending on the literacy level of the respondents. For the non - literate respondents that could neither read nor write, the researcher had to interpret the various questions into Yoruba.

Statistical analysis was done using the SPSS version 10.0 software programs for frequency distribution and cross tabulations. Test for statistical significance were done by the chi-square test for categorical data and the Student t-test for quantitative data; using bi variate regression analysis to model predictor criterion relationships.

Results and Discussion

A total of 215 retailers responded after 2 reminders; 210 questionnaires were validly completed. The anti malarial stocked in the outlets are shown in Figure 1. Only about two percent of the retailer's stocked primaquine, while over 70 percent stocked any two of sulphadoxine/pyrimethamine (SP), chloroquine, halofantrine and amodiaquine. Chloroquine and SP were often demanded by over 71 percent of the patrons of these outlets. The major factors given by the retailers to account for patrons' choice of anti malarial are shown in Table 1. We observed that experience from personal use or quality of the medicine determined about 70% of these choices. Ascertaining the quality of medicines generally remains a significant challenge in the health care delivery system in Nigeria as a result of the problem of fake medicines. (Erhun, Babalola & Erhun,2002).
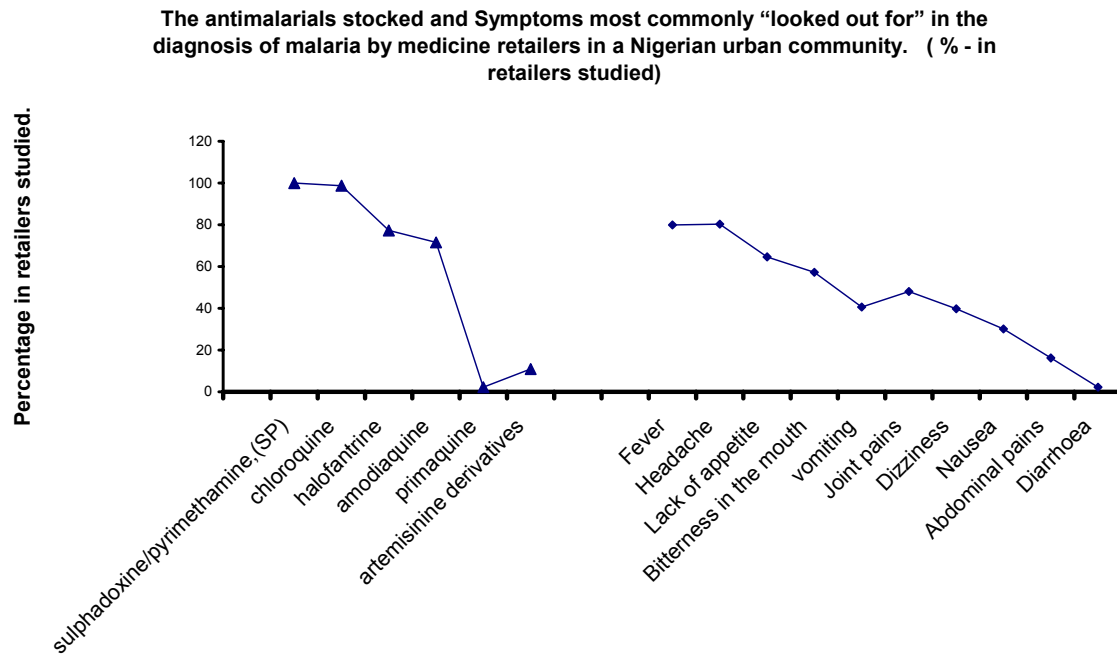
Table 1: Patrons and Retailers knowledge and drug choice factors in malaria management

Factors influencing patrons choice of anti malarial	The methods by which retailers acquired knowledge on malaria.	Retailers knowledge of the spread of malaria	Retailers' preference for prescription of alternative anti malarial in cases of treatment failure.
Experience from personal use (72.9%),	Past experience (76.9%)	Stagnant water (50.7%),	Chloroquine (51.3%)
Quality of the medicine (66.8%),	Formal training (19.7%)	Dirty environment (46.7%)	(SP)- Sulphadoxine/ Pyrimethamine (33.3%),
Prescription by a physician (62.4%)	Journals/magazines (19.7%)	Untreated water (11.4%)	Halofantrine (6.41%);
Price of medicines (61.1%	Electronic media (9.6%).	Evil spirits (11.4%).	Artemisinine (5.8%)

Patron's sensitivity to quality of medicines is therefore understandable. If and when given a chance to prescribe, about 60 percent of the drug retailers would prescribe either chloroquine or SP alone while fewer than 20 percent would prescribe halofantrine and another anti malarial for the initial treatment of uncomplicated malaria. Drug efficacy, medicine quality and experience from personal use formed the basis for treatment decisions. SP is a slow acting schizonticide and should not be used alone when there is a high risk of severe malaria, as occurs in areas such as this study site, and SP monotherapy for malaria management should be used cautiously to avert the emergence of SP resistant parasites. In addition, patients with sulphonamide hypersensitivity or glucose-6-phosphate dehydrogenase (G-6-PD) deficiency are contraindicated. About 70 percent of retailers said these factors were "not a concern". A considerable proportion of malaria treatments occur through self-medication via shop-bought medicines; it was necessary, therefore, to assess how the retailers recognized or diagnosed malaria. The symptoms most commonly "looked out for" by the retailers in their patrons, and which they associated with malaria, are shown in Figure 1. Over 55% of the retailers in this area often looked out for a combination of at least three malaria symptoms (Figure 1). An attempt to correlate the drug prescribed with symptoms most commonly "looked out for" by the retailers revealed that diarrhea determined 3.6 and 2.7% of the variances associated with the prescription of halofantrine (Pearson correlation (r)(208)= 0.19, p< 0.01) and SP (r (208)= 0.16, p< 0.05), respectively. Similarly we found a significant decline in retailers' prescription of halofantrine (r (208)≤ -0.16, p< 0.05) and SP (r (208)≤ -0.16, p< 0.05) as patrons presented with dizziness, abdominal pains, and nausea and vomiting. There existed a larger positive correlation between the prescription of halofantrine and artemisinine derivatives (r (208)=0.47, p< 0.01) than between halofantrine and SP (r (208)=0.25, p< 0.01) for the observed symptoms, cost being the most probable determinant. Halofantrine has been used for treatment of *P. falciparum* malaria; however reports of cardio toxicity and variable bioavailability preclude its recommendation for the routine management of

malaria (Hoffman, 1992). The results also showed that 3.6, 2.0 and 1.7 percent of the variances associated with prescription of Chloroquine are linearly determined by abdominal pains ($r,(208)= 0.19$, $p< 0.01$), headache ($r, (208)= 0.14$, $p< 0.05$) and lack of appetite ($r, (208)= 0.13$, $p< 0.05$), respectively. This moderate correlation between symptoms and the prescription of chloroquine reveal that the retailers had a fair knowledge of how to diagnose malaria as further analysis reveal a significant association between headache, vomiting, nausea, joint pains and fever ($r,(208) \geq 0.19$, $p< 0.01$), the clinical signs of malaria. Generally abdominal pains and diarrhea were less frequently observed in patrons; a study of university students' perception of malaria in Nigeria showed similar results (Erhun & Abayomi, 2002).

Figure 1

The antimalarials stocked and Symptoms most commonly "looked out for" in the diagnosis of malaria by medicine retailers in a Nigerian urban community. (% - in retailers studied)

Similarly in a survey amongst primary caregivers for patterns of care for childhood malaria in Zambia, most mothers gave fever as a defining indicator of malaria, but other accompanying symptoms included diarrhea, vomiting or cough, fast breathing, grunting, extreme weakness and lethargy (Baume, Helitzer & Kachur, 2000). In our study, all retailers indicated that they treated all cases associated with fever as malaria. One respondent asked why he did not recommend a blood test for a patient with suspected malaria, explained "every adult can recognize malaria. It is waste of money to do a blood test."

Polypharmacy is common in Nigeria; about 70% of the retailers would prescribe anti malarial and other drugs for malaria management: 36.7% and 16.2% of the retailers said they would prescribe analgesics and haematinics respectively with anti malarial. The high proportion of analgesics co-dispensed may be due to the fairly large proportion of patrons presenting with headache or retailers on the look out for it as a symptom of malaria (Figure 1). Over 65% of the retailers had experienced cases of treatment failure related to patient non-compliance or inadequate dosage, and about 33.2% of these failures were referred to hospitals. These failures pose higher risks of drug resistance.

Some retailers (35.8%) admitted that injections were administered in their outlets. Almost all (97.6%) of these stated that disposable needles were used. Injections were administered mainly administered by trained nurses (59.0%). About 2.4% of the retailers admitted to having had bad experiences while administering injections in their outlets. Many retailers (72.4%) indicated that the most preferred route of

administration by patrons was oral. This is a positive development since the parenteral route of administration is indicated only when the oral route is medically inappropriate. This result contrasts with our earlier work in which we found that physicians in a university health centre prescribed chloroquine more often as inject able (46% of cases) than as tablet (32% of cases) because their clients claimed that they were less likely to experience allergy with the injection (Erhun & Abayomi, 2002).

When faced with cases of relapse of malaria in patrons, 30.1% of the retailers stated that they would prescribe alternative medicines, and 32.8% would refer their clients to the hospital or health centre. Retailers' preference in the prescription of alternative anti malarial in treatment failure cases is shown in Table 1; inadequate dosage, fake medicine, patients non-compliance, drug resistance were all believed to contribute to malaria treatment failures. Few retailers understood their role in the delivery of primary health care: 80.0% of the non-pharmacist – retailers considered themselves as traders rather than as healthcare providers. This has serious implications for the level of care received by clients in such outlets and thus necessitate that the retailers be re-orientated. A major problem encountered in the effective and efficient running of the healthcare delivery system in Nigeria is the incidence of fake and substandard medicines. Though agencies such as the National Agency for Food and Drug Administration and Control (NAFDAC) exist and are empowered to look into such issues, tighter controls in national government policies would go a long way in curbing the menace (Erhun, Babalola & Erhun, 2002).

Selected factors in respondents' knowledge of malaria are shown in Table 1. Some retailers believed that evil spirits could suggest the need for education. Adequate information about etiology, vector control and other non-therapeutic malaria control measures need to be disseminated to the retailers and possibly through them to the general public, as greater knowledge could potentially reduce the incidence of infection. Only about 13% of the retailers were pharmacists and over 60% of the others had Secondary School Leaving Certificate as "highest educational qualifications." The majority (85.6%) was willing to participate in seminars on malaria. Marsh et al.(1999) showed that training in shopkeepers on medicine use resulted in large shifts in treatment behavior. Considering the level of education of the medicine retailers in this study and their expressed willingness to participate in seminars on malaria, it is recommended that a scheme be put in place to train them.

We observed that pharmacists were mostly present in the pharmacies in the evenings. This is consistent with our earlier results (Erhun, Krenn, Okubanjo & Babalola, 1998), which indicated that on average pharmacists were only present for four out of twelve hours during weekdays. This can greatly affect the level of professional service received by clients. Pharmacists need to be more available to offer professional services to clients.

Conclusion

This study has shown that the majority who retail medicines in the study community were not health professionals. It is recommended that an educational intervention be carried out to correct misconceptions about malaria transmission, enhance accurate diagnosis at first attempt, and facilitate the use of appropriate drug by retailers and to reduce overall treatment cost and possible incidence of drug resistance.

References

Baume, C., Helitzer, D., Kachur,P. S., (2000). Patterns of care for childhood malaria in Zambia. Social Science & Medicine 51 1491-1503.

Erhun, W.O., (2002). Management of sexually transmitted diseases in retail drug outlets in Nigeria. Journal of Social & Administrative Pharmacy. 19(4), 145-150.

Erhun, W. O., & Adebayo, A., (2002). Students' management of perceived malaria in a Nigerian University. Journal of Social & Administrative Pharmacy. 19 (4), 151-160.

Erhun, W.O. Babalola, O. & Erhun,M.O., (2002). Drug regulation and control in Nigeria- the challenge of counterfeit drugs. Journal of Health and Population in Developing Countries. (in press).

Erhun, W.O.., Krenn, S., Okubanjo,M., & Babalola, O.O., (1998). Pharmacists and Family planning in Nigeria. West African Journal of Pharmacy. 12(1), 58-64.

Espino F., Manderson L., (2000). Treatment seeking for malaria in Motong, Bataan, the Phillipines. Social Science & Medicine. 50(9): 1309-16.

Hoffman SL. (1992). Diagnosis, treatment and prevention of malaria. Medical Clinics of North America. 76: 1327-55

Marsh, V.M., Mutemi, W.M., Muturi, J., Haaland, A., Watkins, W.M., Otieno, G, & Marsh K. (1999). Changing home treatment of childhood fevers by training shop keepers in rural Kenya. Tropical Medicine and International Health. 4(5), 383-9.

Nyamongo, I.K., (1999). Home case management of malaria: an ethnographic study of lay people's classification of medicines in Suneka division, Kenya. Tropical Medicine and International Health. 4(11),736-43.