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Compliance of Primary Health Care Providers to Recommendation of Artemesinin-Based Combination Therapy in the Treatment of Uncomplicated Malaria in Selected Primary Health Care Centres in Sokoto, North Western Nigeria

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Abstract: This study assess the level of compliance to prescription of ACT in treatment of uncomplicated malaria among primary health care providers as recommended by WHO in the study area so as to identify likely encountered problems and offer dependable solutions to enhance better management of uncomplicated malaria cases at this level of health care. Fifteen primary health care facilities were selected by multi-stage randomly sampling, five in each of the three senatorial zones. Only health personnel that prescribe drugs in a health facility were recruited in the study. Data on demographic profiles, diagnosis of malaria, first line drugs for uncomplicated malaria, awareness on ACT, availability and cost were collected using self-administered questionnaires. The data in this study revealed that 40% of all anti-malaria prescribed was ACT as first line for uncomplicated malaria. Chloroquine ranked second, use of inefficient combination and artemesinin based monotherapy were also common. Only 12% of pregnant women at first trimester had appropriate prescription and awareness of the respondents on ACT was generally poor. The pattern of anti-malaria prescription in these centres was more on the basis of availability of ACT made through donation than on the recommendation by WHO and National Policy on Malaria treatment. There was need to improve the awareness of ACT in this cadre of health care providers through seminars and workshops.

Key words: Artemesinin, primary health care centres, malaria, compliance, Sokoto, Nigeria

INTRODUCTION

Malaria constitutes a major Public Health burden in sub Saharan Africa particularly Nigeria. The disease, caused by sporozoan genus *Plasmodium* and ably transmitted by female anopheles mosquitoes commonly presents with fever, headache, chills, rigors, vomiting and poor appetite. About 15% of Nigeria's population is exposed to malaria infection at least once in a year (RBM, 2005). Nigeria is responsible for 25% of malaria burden in Africa (DFID, 2009). Half of world population is exposed to the risk of malaria with annual global incidence of 250 million cases resulting in 860,000 deaths mostly involving children from African continent (WHO, 2010). In Nigeria, it accounts for 30 and 11% of childhood and maternal mortalities, respectively and 60% of out-patient consultations are for malaria. Before the advent of Artemesinin-based Combination Therapy (ACT) chloroquine has been on the fore front in the treatment of uncomplicated malaria. However, due to the development of widespread chloroquine resistance in malaria endemic areas in 2004 the federal government of Nigeria adopted ACT as first line treatment for uncomplicated malaria in line with the recommendation of the WHO (Onwujekwe *et al*., 2009). Artemesinin-based combination therapy drugs were supposed to be provided free in all government health facilities and ₦75.00 charged across private pharmacies and medicine stores in Nigeria.

Primary health centres are the first health facilities from which patients seek assistance when they are sick especially in rural and peri urban areas where majority of the populace leave. Therefore, this pre-intervention study is aimed at determining the awareness as well as the compliance of primary level health care providers to WHO recommendation for ACT as first line treatment of uncomplicated malaria. Availability and affordability of ACTs in the primary health care facilities were also assessed. To the best of the knowledge, no similar studies have been carried out in the study area.

MATERIALS AND METHODS

Instruments of data collection: Pre-validated questionnaires were used. The items of interest included demographic characteristics of the respondents, qualification of respondent, number of malaria cases seen

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Table 1: Qualifications of respondents

Qualification	Number	Percentage
MBBS	1	4
RN	10	40
CHO	2	8
Pharmacy technician	1	4
SCHEW	10	40
JCHEW	1	4

MBBS: Bachelor of Medicine Bachelor of Surgery; RN: Registered Nurse; CHO: Community Health Officer; SCHEW: Senior Community Health Extension Worker; JCHEW: Junior Community Health Worker

per month, knowledge of the respondents about the first line and second line drugs in the treatment of malaria generally and in first trimester of pregnancy, methods of malaria diagnosis as well as second line drugs and awareness of ACT (Table 1). The respondents were also asked for free comments on issues not included in the questionnaire. A pilot study was carried out prior to the on set of the study in Yar akija and Arkilla Primary Health centres.

Selection of study area and respondents: The study was a cross-sectional in design that involved multi-stage sampling techniques. Total number of primary health care centres in the state 37 was obtained from the state ministry of health. These centres were stratified along the 3 senatorial districts, namely Sokoto East, Sokoto South and Sokoto Central using simple random sampling techniques. From each of the three zones, five (a total of 15) health centres were also randomly selected to be enrolled into the study (by ballot). The survey was targeted only at staff involved in managing the patients. The questionnaires were self administered and collected there and then and for those respondents who were unable to fill the questionnaire at the spot it was left with him/her to be collected at the next visit. Each senatorial zone was manned by two trained assistants that were knowledgeable in all aspects of the study. The data collected were analysed using soft-ware program for Social Sciences (SPSS).

RESULTS AND DISCUSSION

As shown in Table 2, exclusive use of clinical features for diagnosis of malaria was significantly more frequent (69.23% vs. 30.77%, p = 0.027) among the staff having lower qualifications (SCHEW, JCHEW and Pharm Tech) compared with officers having higher qualifications (doctor, nurses, CHO).

The 25 eligible respondents (mean age: 34.3 years; male: female ratio: 5.3:1), working in 15 primary health centres were surveyed. The pattern of anti-malarial prescription was shown in Table 3. The two most frequently prescribed drugs (singly or in combination with other anti-malarials) were artemether-lumefantrine and chloroquine being mentioned by 44 and 40% of the respondents, respectively (Table 3). The 14 (56%) respondents mentioned either effectiveness or recommendation by World Health Organisation (WHO) as reasons for their prescription while for the remaining 11 (44%) their prescriptions were determined by availability and affordability of the drugs.

Table 2: Qualifications and methods of malaria diagnosis PHCC

Methods of diagnosis	Qualification	Number	Percentage
Clinical only	Lower	9	69.23
	Higher	4	30.77
Clinical and laboratory	Lower	1	12.50
	Higher	7	87.50
Mainly clinical and	Lower	2	50.00
occasionally with lab	Higher	2	50.00

Table 3: Pattern of anti-malaria prescription in PHCC

Drug	Number (%)
Artemether+Lumefantrine	9 (36)
Chloroquine	7 (28)
Pyrimethamine+Sulphadoxin with artemether	2 (8)
Chloroquine with pyrimethamine+Sulphadoxin	2 (8)
Artemether alone	1 (4)
Artesunate alone	1 (4)
Pyrimethamine+Sulphadoxin with amodiaquine	1 (4)
Artemether+Lumefantrine with fansidar	1 (4)
Chloroquine with artemether+Lumefantrine	1 (4)

PHCC: Primary Health Care Centre

The 12 (48%) prescribed first line drugs because of effectiveness, 6 (24%) because the drugs were easily available, 5 (20%) because the drugs were cheap and 2 (8%) due to WHO recommendation. The 15 (60%) of respondents were aware of ACT while 10 (40%) were not. However, none of the respondents was able to give the meaning of ACT or it's various recommended regimens. Three respondents (12%) mentioned treatment of multi-drug resistance malaria when asked importance of ACT. When respondents were asked to comment freely, 9 responded. The 4 (16%) said ACT drugs were expensive while 5 (20%) claimed availability was a problem.

Nurses and senior community health extension workers were the main category of health care givers at these centres (80%). This was reassuring considering the fact that it was level I health care where village health workers (VHW), Junior Health Extension Workers (JCHEW) and trained patent medicine vendors belong to this category of health facilities. The finding in this study of 40% prescription ACT of all anti malaria prescribed as first line therapy in uncomplicated malaria is >26.2% reported in Lagos (Oshikoya, 2007). Respondents' knowledge of ACT was very poor as only 8 and 12% of them were aware of ACT recommendation by the WHO and the fact that ACT was recommended as a result of chloroquine resistance, respectively (WHO and FMOH) and none of the respondents could mention

Table 4: Treatment of malaria at first trimester of pregnancy

Drug	Number (%)
Pyrimethamine+Sulphadoxin	17 (68)
Chloroquine	4 (16)
Artemether+Lumefantrine	2 (8)
Pyrimethamine+Sulphadoxin with chloroquine	1 (4)
Quinine with chloroquine	1 (4)

correctly full meaning of ACT and the its recommended regimens. These findings were indications that the prescription pattern of the healthcare providers was influenced not by evidence but mainly by availability of the drugs. This was supported by fact that ACT drugs were donated free to most of these health facilities. Chloroquine ranked second after fixed dose Lumefantrine + Artemether combination (28%) despite its non recommendation for treatment of malaria probably because it was cheaper and more available especially in the rural areas. Another important finding was the use of ineffectient combination (e.g., Artemether + Pyrimethamine + Sulphadoxine) and the use of artemisin-based monotherapy (as artesunate alone and artemether only) which is associated with serious danger for emergence of resistance to artemesinin based combination therapy. Another disturbing finding of this study was the treatment of pregnant women at first trimester shown in Table 4. Only 4% of the respondents prescribed quinine (plus chloroquine) for malaria treatment in this category of patients which was the recommended therapy at this stage of pregnancy. However, in the absence of quinine, Lumefantrine + Artemether fixed dose was recommended but only 8% of the respondents prescribed it. This showed 88% of pregnant women at first trimester were not properly treated with consequent negative impacts on both maternal and child health. The data on affordability and availability of ACT in these centres may not necessarily reflect true situation on ground because the drug was freely donated to these facilities by donor agencies and the state government and may account for the favorable responses as against what obtained in tertiary level health facilities where no such donations were given (Olurishe *et al*., 2007).

CONCLUSION

This study found that chloroquine was still prescribed at the primary health care centres despite the ban on its use by WHO and Nigerian National Policy on Malaria Treatment. Knowledge of ACT among primary health care providers was very low and there was need for health education intervention at this level of health care on ACT to acquaint the respondents with basic knowledge of ACT.

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