

Home Treatment of Presumed Malaria in Children Attending Outpatient Clinic at The University of Nigeria Teaching Hospital, Enugu, Nigeria

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ABSTRACT

Background: According to WHO, majority of the children who die from malaria do so within the first 48 hours of onset of illness and early use of effective antimalarial drugs will reduce the burden of malaria in endemic areas. This study was to determine the pattern of antimalarial drug use by caregivers, their sources as well as when and why they presented to hospital. **Patients and Methods:** Consecutive mothers whose children presented at the outpatient clinic with fever without localised focus, who believed their children were having malaria, were interviewed with the aid of a questionnaire. **Results:** One hundred and forty-four (62.6%) of the mothers/caregivers had administered antimalarials at home. 112 (78.3%) commenced within 24hrs of onset of symptoms, while 14 (8.7%) started after 48hrs. Duration of home treatment ranged from less than or equals to 24hrs (32.5%) and one week or more (8.2%). Antimalarials given included chloroquine, amodiaquine, artesunate, sulphadoxine-pyrimethamine, artemisinin-based combination therapy, quinine and paludrine. Majority (67.8%) of the medications given were obtained directly from the local drug stores **Conclusion:** There was a high rate of home treatment for febrile illness in our environment; this calls for the need to educate both mothers and patent drug dealers on the current antimalarial treatment policy.

Key Words: Malaria, Treatment, Children, Home

INTRODUCTION

Although malaria is preventable, treatable and curable, it still kills over 1 million people annually. Over 90% of these deaths occur in sub Saharan Africa and almost all of them in children¹.

In Africa, where the mortality is highest, majority of the deaths occur before reaching the health facility². Factors such as distance from home, poverty, the demands of domestic life and perceived poor quality of service, health workers' unfriendly behaviour and incessant drug stock outs have all contributed to the delays in hospital presentation².

Nigeria has a high level of malaria endemicity and parasite resistance to affordable drugs and inadequate access to treatment

facilities result in malaria being one of the leading killers of children, accounting for an estimated 25-30% of under-5 mortality or an estimated 300,000 deaths each year³.

In April 2000, the international community and leaders of African nations met at Abuja, Nigeria and pledged to halve the mortality from malaria in Africa by the year 2010, through implementation of effective strategies and actions of the Rollback malaria initiative. Among the strategies adopted was ensuring that by 2005, at least 60% of those at risk have prompt access to appropriate and affordable treatment initiated within 24hours of onset of symptoms⁴.

This is important as many malaria deaths seen in our hospital are caused by delay in initiating appropriate and effective treatment. According to WHO, majority of the children who die from malaria do so within the first 48 hours of onset of illness and early use of effective antimalarial drugs will reduce the burden of malaria in endemic areas⁵. Considering the various factors enumerated above that militate against early initiation of treatment at the health facilities, it seems wise that the earliest place to

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start treatment is the home. This however will not be possible if the mothers and care givers cannot recognize the disease or if safe, effective drugs are not available. Caregivers most times correctly equate childhood fevers to malaria, but the problem is the step taken to address what they presume to be malaria.

In Africa, 70% of the malaria episodes in the rural areas and 50% in the urban areas are treated at home^{6,7}. The relative accessibility of patent drug stores and pharmacy shops in our communities make them the likely primary source of drugs. It has also shown that by the time most febrile patients present to the public health facilities, three or more days on the average would have elapsed from onset of illness⁶.

With the very high resistance to the usual antimalarials⁸ and the current national malaria treatment policy making artemisinin-based combination therapy the first line of treatment⁹, treatment of malaria has become even more complex and expensive.

This study evaluated the situation in our environment, determined the current pattern of drug use, the sources of the drugs as well as when and why the children present to hospital.

PATIENTS AND METHODS

This was a hospital-based study conducted between the periods of August, 2007 and March, 2008 at the University of Nigeria Teaching Hospital, Enugu, Nigeria.

Consecutive mothers attending the children's outpatient clinic with their children, who believed the children were having malaria fever or just fever without any cause, were recruited for the study. The mothers were questioned by an attending doctor with the aid of a questionnaire. Information like: 'how malaria was recognized in the child', 'which drugs were given and how soon treatment was commenced, the source of the drugs and who made the decision on the drugs to be given. Those who did not know the names of the anti-malarials were asked to describe them. These and other information obtained with the questionnaire were analyzed using the SPSS-15 software.

RESULTS

A total of 230 mothers were interviewed at the children's outpatient clinic during the period

of study. The children's ages ranged between 2 and 132 months with a mean age of 32.48 ± 25.8 months. 87.4% were under five years. There were 138 males and 92 females (M: F=1.5:1). The mothers' ages ranged from 20years to 50 years. Only 2 (0.9%) of the mothers did not have any formal education. Majority had tertiary level of education, 94 (40.9%) of whom had at least university degree or its equivalent. The social classification of the respondents using the method proposed by Oyedeji¹⁰ showed that 42(18.9%), 78(35.1%), 58(26.1%), 39(17.6%) and 5(2.3%) were in social classes I, II, III, IV and V, respectively.

Table I: Symptoms utilized by mothers/care-givers to make diagnosis of malaria.

Symptom	Frequency	(%)
Fever only	40	17.4
Fever + Loss of appetite	32	13.9
Fever + Vomiting	30	13.0
Fever + Loss of appetite + Weakness	22	9.6
Fever + Vomiting + loss of appetite	16	7.0
Fever + Weakness	14	6.1
Fever + 3 or more other symptoms	76	33.0
Total	230	100.0

Table II: Duration of treatment at home before presentation to the hospital

Duration (Hrs)	Frequency	(%)
2 - 4	67	32.5
>24 - 48	58	28.2
>48 - 72	30	14.6
>72	33	16.0
1 - 6 wks (1	18	8.7
Total	206	100.0

All the mothers recognised fever as the main symptom of malaria in children either alone or in combination with other symptoms. Other symptoms commonly seen were vomiting, loss of appetite and weakness. Table I shows the breakdown of the symptoms recognized by mothers/ care givers.

Of the 230 mothers interviewed, only 112 (48.7%) presented to the hospital within 48hours of onset symptoms while as much as 65 (28%) presented after one week (168 hours) or more.

Twenty four (10.4%) did not give any form of medication prior to presentation, 62 (27.0%) gave antipyretic alone, while the rest (144, 62.6%) gave antimalarial drug(s). There was no significant difference in giving home treatment between the mothers with tertiary educational qualification and those with secondary educational qualification or below ($p = 0.790$); also, there was no significant difference between upper and lower social economic classes ($p = 0.542$).

Table III: Antimalarial drug administered at home before presentation

Antimalarials	Frequency	(%)
Chloroquine	34	23.6
Amodiaquine	10	6.8
Artesunate	12	8.3
Sulfadoxine - Pyrimethamine	20	13.9
ACT	44	30.6
Quinine	4	2.8
Paludrine	3	2.1
More than one in succession	8	5.6
Could not identify.	9	6.3
Total	144	100.0

ACT: Artemisinin-based combination therapy

Table IV: Individuals that decided on the anti-malarial drugs administered.

	Frequency	(%)
Mother	88	61.1
Father	20	19.9
PMD/ Pharmacist	26	18.1
Neighbour	6	4.2
Others	4	2.8
Total	144	100.0

PMD: Patent Medicine Dealers. Others: relatives and friends.

Of those who received antimalarial at home, 112 (78.3%) commenced within 24hrs of onset of symptoms, while 14 (8.7%) started after 48hours. Duration of home treatment ranged from less than 24hours (67; 32.5%) to one week or more (18; 8.2%). (Table II). Antimalarials given include chloroquine, amodiaquine, artesunate, sulphadoxine-pyrimethamine, forms of artemisinin-based combination therapy, quinine and paludrine. Eight mothers (5.6%) gave more than one type of drug in succession. Nine (6.3%) mothers could neither name nor describe the anti malarial given (Table III). None

admitted giving herbal medication. Irrespective of the type of antimalarial given, only 62 (47%) mothers/caregivers administered correctly.

Majority (67.8%) of the medications given for the current illness were obtained directly from the local drug stores. Other sources included fresh home stock, left over drugs from previous prescriptions, market and nurses in their locality. The decision on which drug to give was taken by the mothers in 70% (146) of cases, while the patent medicine dealers/ pharmacist recommended the antimalarial in 13.5 % (Table IV).

About fifty-one percent of the children presented to hospital because of persistence of fever, 12.2% due to refusal to feed. Other reasons for presentation include persistent vomiting (8.6%), development of new symptoms (8.0%), excessive weakness (9.2%), fear of wrong treatment (9.2%), others, which included advice from neighbours and to clarify treatment (1.5%). Only 6 (2.8%) admitted to ever using intramuscular injections at home.

Although about 30% of the respondents who gave antimalarials used a form of ACT, only 15% of them actually had an idea of the meaning of artemisinin-based combination therapy (ACT).

DISCUSSION

Treatment of childhood fevers presumed to be malaria at home by mothers and caregivers is still a common practice in our environment despite the increased resistance to the commonly used drugs. Although, all the mothers recognize when their children have fever, their individual response made the difference. While a few will take the child to a designated health facility, most would rather attempt to provide care at home. About 60% of the respondents presented to the hospital within 48 hours of treatment, while almost 10% of them waited as much as one week before presentation to a health facility. This late presentation could be dangerous because by the time the patients presented to the hospital, they were so ill that they had to be admitted in the hospital with its attendant financial burdens and the risk of hospital acquired infections. Also, a good proportion of the mothers still use chloroquine which has been removed from the national malaria treatment guideline because of high resistance to the drug. An earlier study¹¹ had pointed out the deleterious effect of the use of

ineffective antimalarials in the treatment of malaria at home and the need to withdraw chloroquine from circulation. Majority of the mothers belonged to the upper and middle social class with most having tertiary education, and yet their response to child care did not appear to differ from those in the lower class or with lower educational qualification.

It is not surprising that most of the antimalarials given were obtained from the local chemists as these abound in our communities and are easily accessible. Similar reports documented similar findings^{6,7}. Since most of our local drug stores are manned by unqualified persons, there may likely be problem with dosing, even when the appropriate antimalarial has been dispensed. High proportions of inappropriate drug dispensing, dosing or both have been reported from previous study⁷.

Storing of drugs at home is another common practice by mothers and caregivers. This practice may lead to drug misuse, administration of inappropriate drugs and doses. Incomplete dosing of drugs prescribed for a particular illness may arise from discontinuation of drugs too soon after the child feels better. This may be responsible for the left over antimalarials administered by some of the mothers/-caregivers. This is a rather worrisome trend as it may further worsen the drug resistance problem.

The multiple brands of ACTs which continue to flood the market complicate rather than help issues. A good proportion of mothers/caregivers use ACTs without appreciating what they are and how they are administered. It was also noted that some mothers gave the same ACT with different brand names concurrently. This could be a source of drug over dosage and increased incidence of adverse reaction.

In line with the Rollback malaria objective, the nearest place to start treatment is the home. Previous studies in Tigray and Burkina Faso showed that home treatment of malaria reduced progression to severe disease by over 50%^{12,13}. Home treatment of malaria is thus, not a bad idea, provided it is properly done. To ensure the appropriateness of home treatment, education of mothers and caregivers should be pursued with greater commitment both in and out of the hospital. Community-based visits and proper mass media education will help target a high number of mothers. This should include the right antimalarial to give, the right dose for each child

and when to call off the treatment, as well as how to recognize danger signs and when not to embark on home treatment. Mothers should also be discouraged from the use of chloroquine and other forms of monotherapy for the treatment of malaria.

There should be regulation on the continued flooding of the market with different brands of ACTs, which has been creating a lot of confusion to both mothers and health personnel. Unification in the strength of each tablet or suspension will go along way to avoid confusion encountered. Colour-coded packs may help in recognizing the proper antimalarial for each child. Weight, rather than age should be used to categorize the different packs.

Finally, training of patent medicine dealers should be seriously embarked upon as it has been shown to improve home treatment of malaria³.

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