Review

The continued relevance of home management of malaria strategy in the effective and sustainable control of malaria in endemic areas

Chukwuocha A. N. and Chukwuocha U. M.*

Department of Public Health Technology, Federal University of Technology, Owerri, Nigeria.

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Malaria remains one of the World’s most devastating diseases, killing millions of people yearly. The disease is naturally transmitted through the bite of an adult female Anopheles mosquito and accompanied by symptoms which include fever, headache, chills and nausea among others. A wide range of childhood illnesses are accompanied by fever, many of which are treated at home prior to presentation in hospital. Home management is an important strategy adopted for the reduction of its fatality. A mothers/caregiver’s knowledge and ability to recognize fever in their child, as well as, induce management at home is very important. There has been a renewed emphasis on preventive measures at community and individual levels which includes the use of insecticide treated nets (ITNs), indoor residual spraying, wearing of protective clothes, and use of gauze for windows and doors, and use of ACTs. Home management of malaria is a very crucial and important factor that should be adopted as it entails the caregiver recognizing the symptoms and administering drugs to the sick individual before they seek medical attention. This is a very simple and effective way of treating malaria which prevents its progression the critical stage.

Key words: Malaria, Home management, symptoms, early recognition, prompt treatment, antimalaria.

INTRODUCTION

Malaria remains one of the major public health problems in the World today. Of the estimated 400 to 900 million episodes of fever occurring yearly in African children, probably about half due to malaria, results in over one million deaths (Snow et al., 2001). According to the annual report of the National Malaria Control Programme in Nigeria (NNMC, 2005), the financial loss due to malaria is estimated to at 132 billion Naira in form of treatment cost, prevention and loss of man hours. According to WHO (2000a) on the African summit on Roll Back Malaria, there is also an estimated 25 to 30% of mortality in children under five, or estimated 300,000 deaths each year due to malaria. A wide variety of anti-malaria drugs are available to treat the disease. In the last five years, treatment of Plasmodium falciparum infections in endemic countries has been transformed by the use of combinations of drugs containing an artemisinin derivative. Severe malaria is treated with intravenous or intra muscular quinine or increasingly the artesunate derivative artesunate (Borman et al., 2002). Prompt treatment with effective antimalaria therapy is essential and there is increasing commitment to ensuring that 80% of malaria episodes are adequately treated within 24 h of onset of symptoms (Oshikoya, 2007). However, treatment of malaria is challenged by inadequate health-care infrastructure in many parts of Africa. Health facilities are often resource-limited and access to care may be limited by distance, fees, inadequate staffing, and lack of essential medicines. The direct and especially indirect costs of seeking health care from formal facilities may be substantial, providing a major barrier for many households. Thus, febrile illnesses are commonly treated at home frequently with drugs purchased from shops mostly without proper guide.

To improve access to anti-malaria drugs, the World Health Organization (WHO, 2000a) is promoting home-based management of malaria (HMM) as a major strategy for Africa and other endemic areas.
HMM involves presumptively treating febrile children at or near home with anti-malaria drugs distributed by trained members of the community. Community distributors provide medications and educate primary caregivers about treatment of malaria, administration of anti-malaria drugs, and recognition of severe illness (Oshikoya and Sebanjo, 2008). This strategy however, is not without hindrances. It becomes very important to give it wider publicity and also educate community members on its procedures. This review therefore seeks to x-ray the importance of managing malaria at home and ways of effectively achieving it.

CLASSIFICATION OF MALARIA

According to the FMOH (2005), malaria is classified as:

1. Uncomplicated malaria: This is systematic malaria that has no life threatening manifestations. However a case of uncomplicated malaria is characterized clinically by fever which can be present all the time or go away and then return at regular intervals. However, uncomplicated malaria can develop into severe malaria as soon as 24 h after first appearance.

2. Severe malaria: This is when there is P. falciparum asexual parasitaemia and no other confirmed case of their symptoms with the presence of life threatening clinical or laboratory features. The presence of one or more of the following clinical or laboratory features classifies the patient as suffering from severe malaria; Prostration, impaired consciousness (confusion, drowsiness or coma), respiratory distress, multiple convulsions, severe anemia etc.

SIGNS AND SYMPTOMS

As there are several strains of Malaria, the symptoms may vary in individuals. The most common symptom of Malaria is a high temperature or fever which comes in a matter of hours; this may then subside for a while before coming back again. This is a prominent warning sign for medical help to be sought. These temperature fluctuations can be accompanied by one or more of the following symptoms as enumerated by Mendez et al. (2000).

Headache can be defined as a pain in the head or upper neck. It is one of the most common locations of pain in the body and has many causes. Fever refers to an elevation in body temperature. Technically, any body temperature above the normal oral measurement of 98.6°F (37 °C) or the normal rectal temperature of 99°F (37.2°C) is considered to be elevated. However, the severe averages, and one’s normal body temperature may actually be 1°F (0.6°C) or more above or below the average of 98.6°F. Body temperature can also vary up to 1°F (0.6°C) throughout the day (WHO, 2000b). Anything above normal but below 100.4°F (38°C) is considered a low-grade fever. Fever serves as one of the body’s natural defenses against bacteria and viruses which cannot live at a higher temperature.

Chills may occur at the beginning of an infection and are usually associated with a fever. Chills are caused by rapid muscle contraction and relaxation, and are the body’s way of generating heat when it feels cold. They often predict the coming of a fever, or an increase in the body’s core temperature (Salako, 2002). Chills are common in young children. Children tend, in general, to develop higher fevers than adults. Even minor illness may produce high fevers in young children. Other signs according to Chukwuocha et al. (2009a) include diarrhea, weakness, muscular and joint pains, lethargy, coughing fits and abdominal pain (more in children).

Factors responsible for malaria persistence

Regrettably, despite several years of concerted effort, malaria control has continued to be a mirage especially in the tropics. Snow and Marsh (2002) have enumerated factors responsible for malaria persistence in endemic areas to include:

1. Climate condition: According to WHO (2000b) climate change is caused by global warming whereby there is accumulation of heat from the sun on the earth surface that fails to reflect back in the atmosphere. Thus, increase in temperature causes the melting of glaciers, expansion of oceans and the change in climate’s components like temperature, air, rainfall, humidity and others in what is called climate change leading to disruption of water cycle, resulting in challenges on forests and natural resources, agriculture and the food supply and worsening of health issues like malaria. Climatic conditions like temperature affects many parts of the malaria life cycle. Below 20°C, the life cycle of P. falciparum is limited. Higher temperatures increase the number of blood meals taken and the number of times eggs are laid by the mosquitoes (Mendez et al., 2000). In addition, frequent rains bring about formation of ponds which provide suitable habitats for mosquito vectors.

2. Poverty: Malaria and poverty are intimately connected. Judged as both a root cause and a consequence of poverty, malaria is most intractable for the poorest countries in the world. Malaria affects the health and economic growth of nations and individuals alike (Sachs and Gallup, 2001).

3. Ignorance: A widespread lack of awareness of the nature and severity of malaria allows the disease to ravage communities not just in Africa but in most affected rural communities all over the World. Ignorance is an enemy in the fight against malaria. Some people use
mosquito nets for fishing while others have fears about their fertility.
4. Over population: Overpopulation encourages environmental deterioration and quality of life which leads to pollution and encourages breeding sites and multiplication of resistant vector mosquitoes.
5. Weak health system: When a health system is weak it lacks health professionals, encourages or provides sub standard drugs which can lead to drug resistance.
6. Poor sanitation practices: This strongly encourages breeding of mosquitoes as environments not kept clean tend to be damp and create breeding sites for mosquitoes.

Need for managing malaria at home

Approximately 1 million young children in Africa die from malaria every year. Partly as a result of the burden of malaria, mortality rates for children aged less than 5 years have generally remained stagnant over the past decade in Africa (WHO, 2002). The striking aspect of it is that most of these deaths occur at home (Chukwuocha et al., 2009a). According to Nicol (2000), the Millennium Development Goals (MDGs) and goals contained in the outcome document of the recent United Nations Special Session on Children, “A world fit for children”, provide a focus for scaling-up programmes for improving child survival:

1. To “reduce by one-third, by 2010, the infant and under-five mortality rate, in pursuit of the goal of reducing it by two-thirds by 2015”;
2. To “reduce by one half the burden of disease associated with malaria by 2010”; and
3. To “have halted by 2015 and begun to reverse the incidence of malaria and other major diseases”.

Effective management of childhood malaria according to Spencer et al. (2001) must therefore, be a key element in the approach of the Roll Back Malaria programme to achieve these goals. The key coverage target included in the Abuja malaria declaration and “A world fit for children” serve as a guide for programmes aimed at the effective management of malaria in children. At least 60% of children aged less than 5 years should have access to appropriate treatment for malaria within 24 h of the onset of symptoms and this can be more effectively and easily achieved in the home front (WHO, 2000a). Many episodes of malaria are currently treated outside the formal health system, often with inappropriate or incorrectly used drugs. This is particularly common in more rural and remote populations and contributes both to worsening morbidity patterns and increased drug resistance (Chukwuocha et al., 2009b). Programmes for the home management of malaria aim to improve early home-based treatment practices through improved access to, and information on, effective anti-malaria drugs and recommended prescriptions. Although, experience with large-scale home management programmes is limited, there is evidence currently available to support this approach.

Home management of malaria concept

Home management of malaria is the care of malaria at the patients’ home through family participation within available resources (herbs, drugs from shops and tepid sponging) in collaboration with health care workers and then shifted to the health facilities if there is no responses or if the situation has worsened (WHO, 2007a). Home management of malaria can also be said to be the practices, decisions and actions that occur in the home which influences the treatment of malaria and potential malaria illnesses which in practice means non-complicated fevers in under fives (Akogun and John, 2005). At an individual level it is known that prompt treatment with efficacious anti-malaria clears malaria parasites and reduces anemia. Therefore, programmes should use treatments that are effective in reaching individuals as close to home as possible in an operational setting at the community level.

Home-based management of malaria (HMM) is promoted as a major strategy to improve prompt delivery of effective malaria treatment in endemic areas. HMM involves presumptively treating febrile children with pre-packaged anti-malarial drugs distributed by members of the community. HMM has been implemented in several African countries and artemisinin-based combination therapies (ACTs) such as artemisinin and lumefantrin, have been introduced into these programmes on a wide scale (Fawole and Onadeko, 2001). A number of elements are critical to management of the child with malaria and have been enumerated by UNICEF (2003) as follows:

1. The caregiver must recognize the illness as potential malaria; that is early recognition of its signs and symptoms and provide the appropriate dose of an anti-malarial drug, together with supportive care. This requires attention to care practices, communication, and drug dosing characteristics.
2. An efficacious anti-malaria drug must be available either in the home or near the home when the child becomes ill. This requires attention to national policy formulation, monitoring of drug resistance, and drug procurement and distribution.
3. The drug must be affordable for the caregiver. This requires attention to drug pricing and financing.
4. The caregiver must recognize when the illness is severe or not improving and have the means to take the child to health-care facilities. Again, care-seeking is an important issue here, along with community capacity.
development and referral systems.

The effectiveness of home treatment and management of malaria will depend upon health education about malaria for early diagnosis for mothers and caregivers. This requires that mothers and caregivers recognize early the symptoms of malaria and how to intervene. Kidane and Marrow (2000) have opined that diagnosis at home is about recognition of symptoms and signs of malaria such as fever, vomiting and loss of appetite. Even when there are other main symptoms like cough and diarrhea, malaria should still be treated in addition to any other care given at home. It is also of great importance that caregivers and especially mothers should be taught how to recognize signs of severe malaria for which they must immediately bring a child to the nearest health facility.

Furthermore, effective home management of malaria requires that mothers and caregivers obtain the drugs appropriately, also, early commencement of appropriate treatment will ensure better outcome and prevent the progression to severe malaria (Lipowsky et al., 2006). Use of pre-packaged anti-malaria at home has significantly increased the number of children receiving treatment within 24 h according to studies in Uganda and Nigeria, and significantly reduced progression to severe disease in Burkina Faso (WHO, 2007b).

It should be noted that at a time, chloroquine was the first-line drug of choice. Since then, the diminishing effectiveness of chloroquine has led many countries to adopt Artemisinin-Based Combination Therapy (ACT) as first-line treatment for malaria. ACT is currently recommended for use at the health facility level in most countries, and its use at the community level, possibly as part of an HMM programme, is very important (Fawole and Onadeko, 2001).

Fast-acting drugs should be made widely available to parents for home treatment. Communities and families should also be knowledgeable in giving prompt and effective treatment. It is vital that drugs are pre-packaged, rather than as loose pills, as adherence to the correct dosage is then more likely (Derasa et al., 2003). While new and more efficacious drugs and drug combinations will hopefully become affordable and available in Africa in the not-too-distant future, improved services for child survival cannot wait for that day. There must be a coordinated commitment to optimizing the use of drugs that are currently available, and to support the development of effective drug procurement and delivery logistics that will be sustained, irrespective of the drugs being recommended.

A criticism of this approach could be that deployment of drugs for use by caregivers at the household level might intensify the development of drug resistance. At the present time, much of the treatment provided at the household level uses ineffective drugs in inappropriate doses. Under-dosing is associated with poorer clinical outcomes, often manifested in children as anemia.

Provision of efficacious drugs through a programme approach in a format that is likely to result in complete treatment should result in the development of fewer resistant parasites. This tension between “saving lives” and “saving drugs” can be further alleviated by the wide deployment and use of preventive measures in order to reduce the transmission of the malaria parasite. (UNICEF, 2003)

INTEGRATING TRADITIONAL HERBAL MEDICINES IN MALARIA TREATMENT AT HOME

Traditional medicines have been used to treat malaria at home for thousands of years and are the source of the two main groups (artemisinin and quinine derivatives) of modern antimalarial drugs (Bodeker and Willow 2004). With the problems of increasing levels of drug resistance and difficulties in poor areas of being able to afford and access effective antimalarial drugs, traditional medicines could be an important and sustainable source of treatment at home. It has been found that over 1200 plant species from 160 families are used to treat malaria and fever also, on the average, a fifth of patients use traditional herbal remedies for malaria in endemic countries (Odugbemi et al., 2007). There are different forms in which these herbal remedies are prepared and they vary from decoction, to capsule, suppositories, infusions, liquid extract, and solid extract etc. Some examples of herbs used in the treatment of malaria according to Odugbemi et al. (2007) are as seen in (Table 1).

Mothers or caregivers who are not aware of ACTs or have no health center close to them administer these herbal remedies to their invalid to help bring down the fever or cure the invalid, while some others administer these remedies before they can get medical attention. Some mothers or caregivers however administer them because that is what they are comfortable with and it has been working for them (Otembe et al., 2007). A criticism to this approach however, is that most of these herbal remedies lack standardization and most of them have toxic effect to the human body in as much as it helps to alleviate the disease. (Bordeker and Willow, 2004). If therefore, regulatory agencies and biomedical experts can standardize some of these herbals, ascertain their efficacy and regulate them, they can become handy and useful in prompt treatment of malaria at home. A lot of studies are currently being conducted on the efficacy of medicinal plants in the treatment of not only malaria but other human diseases.

WAYS OF ENHANCING HOME MANAGEMENT OF MALARIA FOR BETTER OUTCOMES

1. Members of the community should be brought together
and carefully made to understand the danger of malaria and importance of managing it at home.

2. The health care worker should make sure that there is constant availability of drugs and should ask for more drug supply on time when the ones in stock are diminishing.

3. The members of the community should be made to understand the danger signs and symptoms and administer anti-malarials and not wait till it becomes chronic.

4. Members of the community should not hesitate to refer the invalid to a health care system if he/she shows no improvement in health status.

5. Drugs should be made readily available and easily affordable to the masses.

6. Appropriate training of community health workers and service providers is also very important.

CONCLUSION

Home management of malaria is a very important and critical strategy which has proven to be effective in reducing malaria burden and also progression to severe disease. It only needs compliance, awareness, improved care and effective drug delivery. There is need to support research that provides national programmes with information that addresses the broad range of capacities required to assure that effective anti malarial therapy is available nearby when children become sick. Malaria, being a major cause of fever in children, requires mothers/caregivers to be educated and provided with guidelines on its early recognition; through symptoms and signs, appropriate diagnosis and treatment with artemesinin combination therapy. There is also need to create more awareness on the use of artemesinin combination therapies amongst mothers and care givers as the choice of malaria treatment in children. Mothers and care givers should also be educated on when to consult health facilities should home treatment of malaria fail or the presenting symptoms and signs go beyond those of malaria. It is necessary that community intervention programmes directed towards correcting misconceptions about the cause of malaria, the recognition of danger signs which will require prompt referral to health facilities and improving health seeking practices be put in place. Appropriate home management with effective drugs given in correct dosages should be promoted since majority resort to self-treatment. There is no doubt that this strategy holds considerable promise for effective and sustainable malaria control. It only requires putting the necessary machineries in place.

REFERENCES


