The dangers of counterfeit Artemisinin Combination Therapy (ACTs) for Malaria treatment in rural communities, Nigeria

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Abstract

Almost all deaths due to malaria in children and pregnant women are avoidable, since patients can be treated with antimalarial drugs which are now available in every country. The major impediment especially mostly in developing countries like Nigeria's rural communities is early detection and proper treatment with antimalarials. The high cost of Artemisinin Combination Therapy is creating a market for counterfeit drugs which is leading to dramatic rise in poor quality and counterfeit antimalarials in Nigeria, especially at the rural communities. Therefore, public health organizations and regulatory agencies must take urgent, coordinated action to prevent the circulation of counterfeit drugs and address the cost inequities in access to Artemisinin Combination Therapy in the rural communities in malaria endemic areas to avoid resistance which might lead to disaster in malaria control.

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Introduction

The cornerstone of case-management of malaria is the early identification and treatment of those with mild disease with an effective antimalarial. In principle, almost all deaths due to malaria in children and pregnant women are avoidable, since patients can be treated with antimalarial drugs which are now available in every country [1]. Following a steady decline in the effectiveness of existing mono-therapies for malaria, most malaria-endemic countries in Africa and Asia adopted

policies that endorse Artemisinin Combination Therapy (ACTs) as their frontline antimalarial drug and several ACTs drugs exist and others are in the pipeline [1]. These drugs are promoted, distributed and administered as the preferred antimalarial in Nigeria.

Access to ACTs is critical to reducing malaria mortality. In areas of sub-Saharan Africa where medical services are not readily accessible, treatment often begins too late or is not available, and patients die at home without contact with formal medical services [2,3]. However, in some areas where services are available, one of the barriers to accessing ACTs is the high cost of the drugs. Even with government subsidized pricing, these drugs are rarely found in the public tertiary hospitals; instead, they are sold in private hospitals, pharmacies and patent medicine stores. As a result, they are sold at higher prices for profit.

The high cost of ACTs is creating a market for counterfeit drugs. Recently, there has been a dramatic rise in reports of poor quality and counterfeit anti-malarials in Nigeria, especially at the rural communities (Fig 1 below).

One study sampled 104 artemisinin-based medicines from pharmacies in Ghana and Nigeria that were offered under the Affordable Medicines Facility by the Global Fund to Fight AIDS and Malaria to boost access to the best treatments [4], and analysis of the drugs revealed mildly active ingredients that may initially alleviate malaria symptoms but would not cure malaria. Worse still, eight drugs were found to be significantly under-dosed in artemisinin with less than 75 percent of the main component of the drug [4]. The low level of artemisinin would be insufficient to clear the malaria parasites, potentially resulting in death for the patient. Furthermore, in areas of high transmission, the persistence of sub-therapeutic levels of artemisinin contributes to the emergence of resistant strains, as observed in Southeast Asia (5). And *plasmodium species'* resistance to ACTs will be a disaster for malaria control in the world after so many efforts and much investment especially in sub-Sahara Africa.

There are others malaria drugs' counterfeits that contained a mixture of inactive ingredients such as sugar or chalk. The presence of these off-label ingredients could cause potentially serious side effects, especially if they were to interact with other drugs e.g. ART for HIV treatment.

Discussion and conclusion

The malaria drugs for sale in rural communities of Nigeria are almost indistinguishable from the authentic ones. The packets even have hologram stickers that are nearly identical to the stickers from the factory. In rural communities of Nigeria, malaria drugs and many other medications are sold openly without a prescription in markets and small shops or kiosks. Despite the control from the National Agency for Food and Drug Administration and Control (NAFDAC), political corruption and weak border control contributes to the funneling of counterfeit drugs into Nigeria. Almost all malaria patients (including other disease patients) in the rural communities seek treatment at local village medicine vendors popularly called Patent Proprietary Medicine Vendors (PPMVs) who lack the expertise or resources to distinguish real drugs from counterfeits.

Addressing this problem is now a priority. The rural communities in Nigeria are the epicenter of resistance to vital anti-malarial drugs. The situation is worse in ethnic areas in rural riverside communities, which receive little or no government health services and are inaccessible to large-scale international efforts. These regions are populated with vulnerable communities and rife with fake anti-malarial drugs, contributing to a growing reservoir of infection and a “perfect storm” of conditions to encourage increasing resistance to key artemisinin-based drugs.

Why should people in the rural communities in Nigeria die because of the high cost of a malaria drug which is ordinarily meant to be sold cheaply or given free? Malaria is not a disease that can kill since it is treatable, preventable and curable. Therefore, public health organizations, regulatory agencies and the government must take urgent, coordinated action to prevent the circulation of counterfeit drugs and address the cost inequities in access to ACTs in the rural communities in malaria endemic areas. Top priority should be given to these endemic areas and special programs should be designed to educate and enlighten these rural dwellers on dangers of using fake ACTs. There is also an urgent need to strengthen pharmaceutical management systems such as post-marketing surveillance and the broader health systems in Nigeria to ensure populations in the rural communities have access to antimalarial drugs that are safe and good in order to avoid drug resistance.

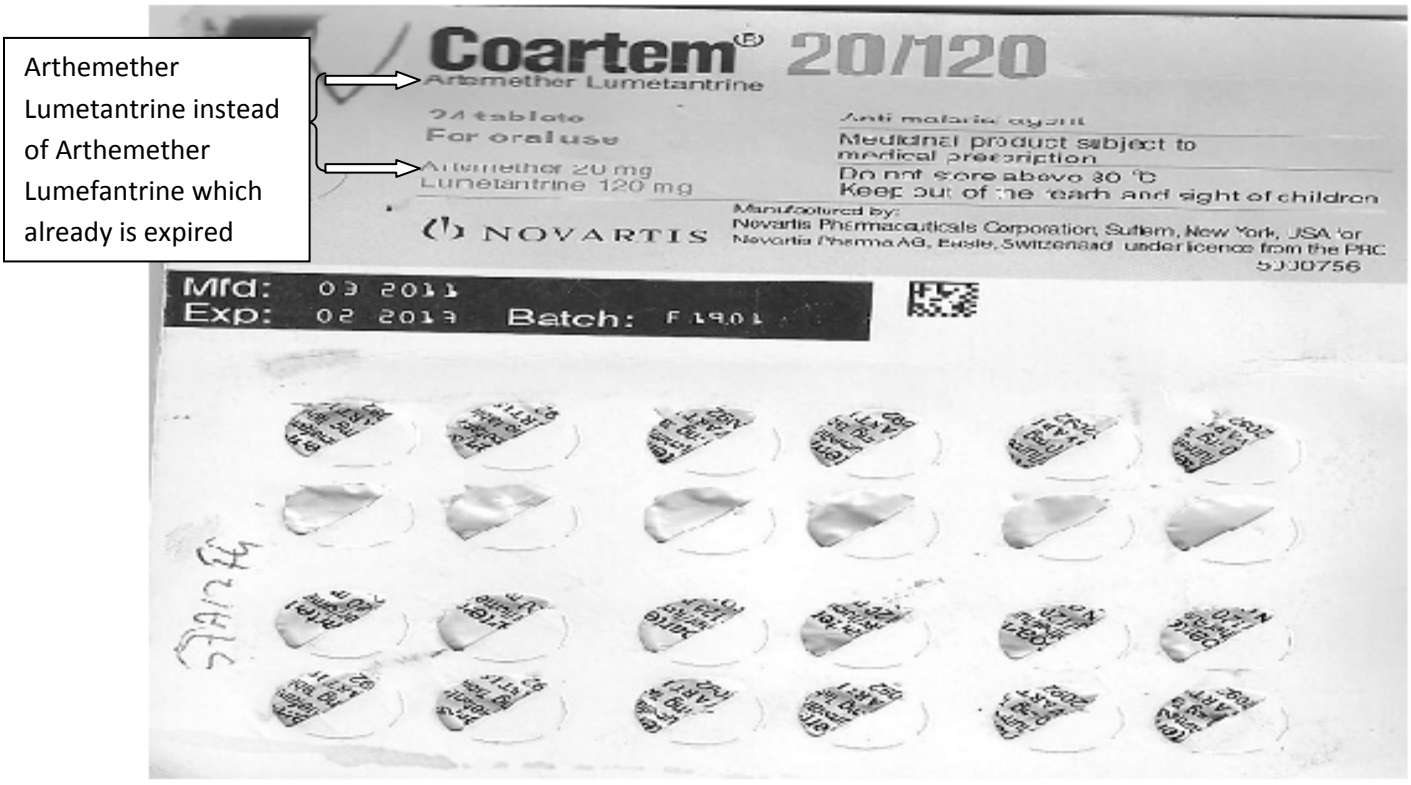

Fig 1: Photo above shows fake Arthemether Lumetantrine instead of Arthemether Lumefantrine which already is expired and being sold in the rural communities. (Ogboi, 2013)

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