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Post-marketing surveillance of active pharmaceutical ingredients in anti-malarial drugs used in Malawi

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Abstract

The use of poor quality antimalarials causes low bioavailability of the active pharmaceutical ingredients (APIs) to the drug targets resulting in treatment ineffectiveness or failure and parasites' resistance over a short period of drug usage. Resistance has rendered the hitherto cheap and effective drugs like chloroquine and sulfadoxine / pyrimethamine replaced with the expensive artemisinins in combination with some alkaloids; artemisinin-based combination therapy (ACT) for malaria treatment. High cost of the ACTs has made them attractive to counterfeiters leading to the proliferation of poor quality antimalarials on the drug markets. 112 samples of antimalarial drugs were purchased from licensed and unlicensed markets in selected parts of the country. Samples were subjected to visual inspection and registration verification with the regulatory board. Basic tests, semi-quantitative thin layer chromatography (SQ-TLC) and high performance liquid chromatography (HPLC) tests were conducted to quantify the APIs in the samples. The results showed an 85 % registration status with all samples purported to be imported. In addition, all samples complied with visual inspection requirements and basic tests. Generally, approximately 95.12% of the artemether/lumefantrine containing samples had failed the tests, with dihydroartemisinin/piperaquine phosphate, dihydroartemisinin/sulfadoxine/pyrimethamine, sulfadoxine/pyrimethamine, artesunate/sulfadoxine/pyrimethamine and quinine containing samples having failure rates of 64.30%, 100%, 91.30%, 88.9% and 53.8% respectively, resulting to an overall 85.71% failure rate. Therefore, the tests confirmed the presence of requisite APIs in all the drugs and wide spread circulation of poor quality antimalarial drugs in Malawi with dihydroartemisinin/sulfadoxine/pyrimethamine containing samples being more compromised.

Biography

Ibrahim Chikowe is a master of philosophy in chemistry student of the University of Ghana, from Malawi being sponsored by DFID/Welcome trust under the Health Research Capacity Strengthening Initiative (HRCSI) through National Commission for Science and Technology in Malawi. He was awarded a research fellowship to pursue medical chemistry at any African university in 2011. He is expected to graduate in November, 2013.