Determination of validity for laboratory tests in malaria diagnosis among febrile children in Oltepesi, Kajiado District. 2014

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Abstract:

Fever or history of fever as a clinical malaria symptom is considered a predominant criterion for diagnosis and treatment. However, clinical or presumptive malaria diagnosis based on fever poses diagnostic problems, with other various febrile illnesses. Clinical diagnosis is sensitive but has a low specificity. This leads to substantial over-diagnosis of malaria, especially in low transmission settings where diagnosis is routinely presumptive. There is need, to determine the performance of the rapid versus microscopy diagnostic tests for malaria diagnosis. Currently, malaria parasitaemia assessment in children under five years with clinical symptoms of fever in Oltepesi area presents a diagnostic challenge although early detection and correct treatment still remains an important goal in disease manag~ment. The main objective of the study was to determine the validity of the rapid and microscopy tests in malaria diagnosis among febrile children under five visiting Oltepesi health facility. The studies were aimed at evaluating microscopy examination as a diagnostic method for malaria in children under five years with fever. A cross-sectional study was conducted examining febrile children under five years visiting Oltepesi health facility. The study was conducted taking blood samples from 127 males and 83 females and subjecting the samples simultaneously to rapid diagnostic and microscopy tests for detection of malaria parasites. Ninety-six (45.7%, 95%CI= 38.4-52.7%) were positive by microscopy and seventy-seven (36.7%, 95% CI=30-43.7%) were positive by rapid diagnostic test. Twenty children that tested positive by microscopy were falsely identified as negative on rapid diagnostic test. Of the 114 children under five identified as negative on microscopy, only one (0.88%) was falsely identified as positive by rapid diagnostic test. Using microscopy as the gold standard, the relative sensitivity and specificity of microscopy were 99.12% and 79.17% respectively. In addition positive and negative predictive values were 98.70% and 84.96% respectively. The statistical association between temperature and malaria parasitaemia detection by microscopy (p=0.015,' 95% CI=0.522-0.675) as compared to RDT (p=0.044, 95% CI=0.506-0.665) showing statistical difference at 5% significance level. The correlation was significant at 0.001 level r=-0.410, p=O.OOOmicroscopy and r=-0.413, p=0.812 RDT. In conclusion improved malaria diagnosis in CU5 by shifting from symptom-based to parasitological confirmation for rapid and accurate malaria management and avoid over-treatment with anti-malarial drugs.