od smear microscopy to a rapid diagnostic test for in-vitro testing for P. falciparum malaria in Kenyan school children

Neumann, CG; Bwibo, NO; Siekmann, JH; McLean, ED; Browdy, B; Drorbaugh, N

Abstract:

OBJECTIVE: To compare the diagnostic performance of microscopy using Giemsa-stained thick and thin blood smears to a rapid malaria dipstick test (RDT) in detecting P. falciparum malaria in Kenyan school children. DESIGN: Randomised, controlled feeding intervention trial from 1998-2001. SETTING: Rural Embu district, Kenya. The area is considered endemic for malaria, with four rainy seasons per year. Chloroquine resistance was estimated in 80% of patients. Children had a spleen rate of 45%. SUBJECTS: A sample of 515 rural Kenyan primary school children, aged 7-11 years, who were enrolled in a feeding intervention trial from 1998-2001. MAIN OUTCOME MEASURES: Percent positive and negative P. falciparum malaria status, sensitivity, specificity and positive and negative predictive values of RDT RESULTS: For both years, the RDT yielded positive results of 30% in children compared to microscopy (17%). With microscopy as the "gold standard", RDT yielded a sensitivity of 81.3% in 1998 and 79.3% in 2000. Specificity was 81.6% in 1998 and 78.3% in 2000. Positive predictive value was 47.3% in 1998 and 42.6% in 2000, and negative predictive value was 95.6% in 1998 and 94.9% in 2000. CONCLUSION: Rapid diagnostic testing is a valuable tool for diagnosis and can shorten the interval for starting treatment, particularly where microscopy may not be feasible due to resource and distance limitations