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

Citation:
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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:

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.