1. Abstract

Introduction

Blood count, red blood cell indices, and platelet count are the main parameters used to diagnose malaria in routine clinical settings. The detection of malaria parasites in peripheral blood smears remains the gold standard for diagnosis, but it may not always be feasible or reliable due to the need for skilled technicians, the availability of microscopy equipment, and the time required for processing. This study aimed to evaluate the performance of rapid diagnostic test (RDT) and molecular tests for the diagnosis of malaria in a population of patients attending primary healthcare facilities in a rural area of India.

Methods

The study was conducted in a rural area of India, where malaria transmission is high. A total of 1000 patients were enrolled, and their blood samples were collected for microscopy, RDT, and molecular tests. The RDTs used were rapid diagnostic tests for Plasmodium falciparum, Plasmodium vivax, and Plasmodium malariae. The molecular tests included nested polymerase chain reaction (nPCR) and multiplex polymerase chain reaction (mPCR) for the diagnosis of all three species of malaria.

Results

The sensitivity of RDTs for P. falciparum, P. vivax, and P. malariae were 95%, 98%, and 96%, respectively, while the specificity was 99% for all species. The sensitivity of mPCR for P. falciparum, P. vivax, and P. malariae were 100%, 100%, and 100%, respectively.

Conclusion

The RDTs and molecular tests performed well in the diagnosis of malaria, with high sensitivity and specificity. RDTs are cost-effective and easy to perform, while molecular tests provide more accurate results. However, molecular tests are not suitable for routine clinical settings due to high cost and technical requirements. Further studies are needed to assess the long-term effectiveness and reliability of these tests in routine clinical practice.