STUDY OF CONCORDANCE AMONG QUANTITATIVE BUFFY COAT (QBC), ANTIGEN DETECTION AND PERIPHERAL SMEAR EXAMINATION FOR THE LABORATORY DIAGNOSIS OF MALARIA

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ABSTRACT

Background and Objectives: Malaria is a serious, sometimes fatal disease posing a major public health problem in India. Early diagnosis and prompt treatment is the key to minimize the morbidity and mortality due to malaria. Peripheral blood smear examination has been the "gold standard" for the diagnosis of malaria. However, microscopy is labor intensive, requires significant skills and time, which causes therapeutic delays. Newer methods such as Quantitative buffy coat (QBC), RDTs are being widely used for diagnosis. In the present study, efficacy of peripheral smear (PS) and Antigen detection (Ag) was compared taking QBC as a standard.

Methods: Total of 124 clinically suspected cases were included in the study.QBC positive 62 samples and age and sex matched QBC negative 62 samples were further evaluated by PS and Ag.

Results: In the present study, the sensitivity, specificity, positive predictive value and negative predictive value of PS were found to be 95.2%, 100%, 100% and 95.4% respectively. Sensitivity and specificity of antigen detection was found to be 93.5% and 100% respectively. Positive predictive value of antigen detection was found to be 100% and negative predictive value was 93.9%.

Interpretation and conclusion: A test which is rapid and can detect low level of parasitemia should be used for routine diagnosis in endemic areas. Although PS is cost effective, is difficult to interpret by inexperienced microscopists. The sensitivity of RDTs decreases with parasitemia. QBC is a concentration method for direct demonstration of parasite which is rapid, reliable and easy to perform. QBC should be used for routine diagnosis in the laboratories which screen large number of samples.

Key words: QBC; Malaria; RDTs; PS; Falciparum; Vivax