

1. ABSTRACT

Circulating filarial antigen tests are introduced as rapid and sensitive methods to diagnose bancroftian filariasis in day- time blood samples.

A comparative study of three filarial diagnostic tests; thick blood film (TBF), Nuclepore® membrane filtration (NMF) and immunochromatographic (ICT) card test for filariasis were carried out in Colombo, Gampaha (endemic study population) and Kandy (non endemic controls) districts. The objectives were firstly to evaluate a rapid format ICT card test (ICT Diagnostics Australia) for filariasis in the diagnosis of bancroftian filariasis and to compare its sensitivity, specificity and cost effectiveness with TBF (standard survey tool) and secondly to investigate any association between antigenaemia, microfilaraemia and clinical manifestations.

226 individuals were selected from highly endemic localities in Colombo [n=153(67%)] and Gampaha [n=73(32%)] districts and the control sample (n=29%) was selected from Kandy district. Blood was collected between 20.00-23.00 hours. 60µl of non-heparinized blood, 1ml and 100µl of heparinized blood were used in TBF, NMF and ICT respectively. An expert validated questionnaire was used to screen for clinical manifestations.

The mean age of the study population was 34.8 years (range 14-76, SD 16.78); the male: female ratio was 98:128. NMF was positive in 67/226 (29%) with a mean microfilaria(mf) count of 343/ml (range 8-1782, SD 422). All 67 were positive by ICT (sensitivity 100%), but only 63 by TBF(sensitivity 94%). Among the endemic population there were 12 more who were positive only for filarial antigen (12/146). There were no false positives among the non-endemic controls indicating high specificity. 57/226 (25.2%) had one or more filariasis associated features (lymphoedema, hydrocoele, lymphadenitis, lymphangitis, filarial fever, night cough and

red spots). ICT was performed on 54 of these symptomatic individuals, only 25 (46.3%) reacted positively. 24 out of these 25 were also mf positive. Among the 169 asymptomatics 43(24.9%) were positive by NMF while ICT was positive in 54/159(33.9%). The unit recurrent costs of the two survey tools, TBF and ICT were Rs.27 and Rs.24 respectively.

Conclusion: As a screening tool ICT appears to be effective (both sensitive and specific) but not cost effective for routine mass surveillance in Sri Lanka. Both ICT and NMF were positive in only \approx 40% of individuals with features suggestive of clinical filariasis.