COMPARISON OF THE MIRACIDIUM HATCHING TEST AND MODIFIED KATO-KATZ METHOD FOR DETECTING SCHISTOSOMA JAPONICUM IN LOW PREVALENCE AREAS OF CHINA

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Abstract. The diagnosis of Schistosoma japonicum (Sj) infection in low prevalence areas of the People’s Republic of China is challenging due to the sensitivity of the detection methods, leading to an underestimation of the disease burden. We compared the sensitivities of the miracidium hatching test (MHT) with the modified Kato-Katz method (KK) and the combination of the two methods (KK-MHT) to detect Sj infection in low prevalence areas of China. The stool samples of 3,853 residents from 8 villages with a light to moderate prevalence (0-23%) of Sj infection were examined by KK, MHT and KK-MHT. The findings were inconsistent. The KK-MHT combination gave more positives than either the KK or MHT alone. Using the KK-MHT, we determined the missed rates with the KK (mR_K) and MHT (mR_H) to be 30.1% and 10.2%, respectively. At light prevalence sites (infection rate ≤10%) the mR_K was 60.6%, significantly higher than the mR_K of 22.3% found at moderate prevalence sites (10-23%). However, the mR_H at the light and moderate prevalence sites were 11.54% and 9.90%, respectively (p>0.05). The combination KK-MHT had the best sensitivity in low Sj prevalence areas in China and the KK method alone was the least sensitive. Using KK alone as a screening method will result in an underestimation of Sj infection disease burden.

Keyword: schistosomiasis japonica, fecal examination, Kato-Katz method, miracidium hatching test, PR China