

## ABSTRACT

Trichuris trichiura infection,  
growth and development in  
Jamaican children

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In order to investigate any effects of T. trichiura on children, 3 studies were carried out. In Study I, a case control study, 19 children suffering from Trichuris Dysentery Syndrome (TDS), the heaviest and most severe form of infection, were studied and compared with an uninfected group matched for age, gender, and area of residence. The mental development of the children was assessed using the Griffiths Mental Development Scales. Their cognitive function was assessed using the Matching Familiar Figures, Digit Span Forwards, and Fluency tests. Their weights, heights, skinfolds, mid-upper arm and head circumferences, and anaemia status were measured. The TDS children were given anthelmintic treatment and kept worm free for 1 year. All children were re-tested 7 1/2 weeks, 6 months and 1 year after treatment. The children's social background was assessed.

Study II was a cross-sectional survey of 600 poor children which identified subjects for Study III. A short questionnaire was given to the caretakers of the children to determine bowel symptoms. The prevalence of T. trichiura and A. lumbricoides were estimated.

The effects of T. trichiura on children with mild to moderate infection (n=56), were also examined in a clinical trial (Study III). The same cognitive function tests used in Study I were administered and the children's height, weight, and anaemia status were measured. Measurements were repeated 4 weeks later except for the blood test.

The TDS children had a serious deficit in their scores of all the subscales of the Griffiths test. This deficit remained after controlling for several social background variables. There were no differences in the cognitive function test scores between the TDS and control groups. The TDS children were shorter for their age and were very anaemic compared with the controls. One year after repeated treatment, the TDS children showed substantial improvement in motor development ( $p < 0.0001$ ) DQ ( $p < 0.05$ ), growth ( $p < 0.0001$ ), and Hb status ( $p < 0.0001$ ) although they did not completely catch up to the controls in height or motor development.

The survey revealed the overall prevalence of

T. trichiura to be 52 % and A. lumbricoides to be 24 %.

There was an association between bowel symptoms and moderate infections of T. trichiura and these increased in the presence of A. lumbricoides infection.

The mild to moderately infected children showed no growth retardation nor were they anaemic. There were no treatment effects in cognition or anthropometry between the treatment and placebo groups 4 weeks after treatment.

The results suggest that T. trichiura has adverse effects on at least some aspects of development, growth, and anaemia status in poor, heavily infected children. No effects of treatment on cognition, growth, or anaemia status were observed in a small clinical trial of moderately infected children. The development and nutritional status of heavily infected children would be expected to improve with regular anthelmintic treatment.