

Transmission dynamics of *Giardia lamblia* in a cohort of rural school children

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Abstract: A longitudinal study that included 6 surveys was done on 264 children attending a rural primary school in Gharbia Governorate, Egypt to study the transmission of the protozoan *Giardia lamblia*. The surveys were done every two months from September 2001 to July 2002. On each survey, three stool samples were collected from each participating child over one week period, and all three samples were pooled and examined using formol ether concentration technique. At the end of the study period, weight and height were recorded and anaemic status was estimated. Results revealed that *G. lamblia* prevalence ranged between 20.5% in May and 26.5% in November with no observed seasonality. By the end of the study period, 83.7% of the children had at least one positive *G. lamblia* stool examination. Loss and reinfection rates were 77% and 40.9%, respectively. The high susceptibility may be due to the ubiquity of the parasite in the environment and the antigenic variation of the organism that leads to evasion of the immune response. Transmission pathways appear to be person to person as indicated by repeated infection in 50% of children with bad personal hygiene, and in those having a high crowding index. Environmental role is indicated by higher detection times among those who used stored water for drinking. Neither anaemia nor under nutrition was associated with the infection. An integrated program should be implemented blending nutritional interventions and phytotherapeutic agents with health education to minimize symptomatology and clear the parasite, without significant side effects.

INTRODUCTION

Giardia lamblia [also known as *G. intestinalis* or *G. duodenalis*] is considered the most common protozoal infection in humans; causing an estimated 2.8×10^8 cases per annum.¹ It occurs frequently in both developing and industrialized countries and is geographically widespread in Egypt where prevalence may reach 27.4% in rural school children.^{2,3} Furthermore, in a recent study done in Dakahlia, a rural Egyptian Governorate, *Giardia* cysts were found in 7.9% of soil samples.⁴ *G. lamblia* can exist in two distinct forms;

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