PILOT STUDY ON HUMAN AND ZOONOTIC INFECTIONS OF GASTROINTESTINAL PARASITES IN SOUTHERN INDIA

Santosh George¹, Saravanan Kumar¹, Umar Ali¹, Sitara Rao Ajjampur¹, Bruno Levecke², Peter Geldhof², Jozef Vercruysse², Gagandeep Kang¹

¹Wellcome Trust Research Laboratory, Department of Gastrointestinal Sciences, Christian Medical College, Vellore, Tamil Nadu, India.
²Laboratory of Parasitology, Department of Veterinary Medicine, Ghent University, Merelbeke, Belgium

South-Asia contributes substantially to the number of gastrointestinal (GI) infections occurring globally in humans, including Ascaris, Trichuris and hookworms, the so called soil-transmitted helminths (STH). There is presumptive evidence that animals such as dogs and pigs contribute to the epidemiology of these parasites. In southern India, the role of these animals as reservoir for most GI parasites, especially the human STH still remains unclear. The main objective of this pilot study was to assess parasitic infections in both humans and pigs in Vellore district (southern India).

The study was carried out in 5 villages of Jawadhi hills, which houses an aboriginal population, mostly heterogeneous set of ethnic and tribal groups. A total of 100 stool samples were collected from children, aged 2-10 years and 54 stool samples from pigs which were reared in close proximity to the study children. The samples were then screened for various intestinal parasites using a saline wet mount microscopy.

Of the total human stool samples collected, Giardia (20%) accounted for most of the parasitic infection. Hookworm was seen in 9% of the samples collected. A single case of Enterobius vermicularis and Hymenolepis diminuta were also observed. In the pig stool samples collected, Balantidium coli (37.5%) accounted for majority of the infection followed by Giardia (2%). There were 7 (13%) samples that showed hookworm-like eggs. None of the stool samples collected either from humans or pigs showed Trichuris or Ascaris infection.

In the present study, Ascaris and Trichuris infections were absent in both humans and pigs, and hence no conclusions could be drawn on the role of animals as reservoir for human STH. However, it indicates the presence of potential zoonotic protozoa, B. coli and Giardia. In the near future, molecular methods will be applied to identify the hookworm infections in humans and the hookworm-like eggs found in pigs.