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Co-occurrence of Neurocysticercosis and Taeniasis Within Communities of Northern Peru: Implications for Anthelmintic Treatment Strategies

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Abstract

Background

Neurocysticercosis (NCC), a central nervous system (CNS) infection with *Taenia solium* (pork tapeworm), is a leading infectious cause of epilepsy in endemic areas. Treating *T. solium* taeniasis with anthelmintic medications (AHMs) like niclosamide or praziquantel (PZQ) is essential to prevent NCC. However, co-infections of taeniasis with viable NCC, the presence of living CNS cysts, impose a risk of neurological adverse events with PZQ, complicating treatment decisions. The availability and type of AHMs and lack of feasible diagnostic methods for NCC in community settings is a major challenge in informing anthelmintic treatment decisions, warranting exploration of NCC prevalence among people with taeniasis.

Objectives

This study aimed to describe the prevalence of taeniasis in screened communities and the prevalence of NCC, along with key characteristics, among people with confirmed taeniasis from northern Peru.

Methods

Cross-sectional surveys were conducted in northern Peru (2021-2022) to identify people with taeniasis. Participants with confirmed taeniasis were selected and underwent a neurological examination to rule out viable NCC prior to anthelmintic treatment.

Participants' demographic, clinical, and diagnostic characteristics were described based on NCC status.

Results

Taeniasis prevalence ranged from 0.0% to 2.4% in screened communities, with an overall prevalence of 0.7%. Among 76 participants with confirmed taeniasis, 8 (10.5%) had viable NCC and were not administered PZQ. Most individuals with viable NCC had multiple viable parenchymal cysts (37.5%), whereas one individual had multiple cysts (>15) identified in both parenchymal and subarachnoid locations. Participants with viable NCC were older, more likely female, and had no history of neurological symptoms when compared to those without viable NCC.

Conclusions

Co-infections of taeniasis and NCC present a meaningful concern in community settings, highlighting the need for accessible medications such as niclosamide that can effectively target taeniasis while minimizing risk of adverse events to those with viable NCC.