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Mebendazole in giardiasis: Systematic review and meta-analysisPedro Almirall¹, Angel A Escobedo², Eduardo González-Fraile³ and Javier Ballesteros⁴¹Ministry of Public Health of Cuba, Cuba²Hospital Pediátrico Borrás-Marfan, Cuba³Institute of Psychiatric Research, Spain⁴University of the Basque Country, Spain

Introduction: At present, 5-nitroimidazole compounds are the pharmacological cornerstone for people with *Giardia* infections. However, treatment failures are increasingly reported. Mebendazole (MBZ), a benzimidazole compound, has received attention in treating patients with giardiasis since beneficial effects have been demonstrated *in vitro* and *in vivo*.

Aim: The aim of this study was to assess in a systematic review and meta-analysis of randomized controlled trials (RCTs) the efficacy of MBZ compared to other anti-giardial agents in children.

Methods: RCTs of MBZ for the treatment of *Giardia* infections published in PubMed and EBSCO host were searched. Application of inclusion and exclusion criteria, data extraction, and assessment of methodological quality were independently performed in duplicate. The endpoint was the parasitological response to therapy.

Results: Seven RCTs were found in the systematic review (639 patients) and were included in the meta-analysis. There is not clinical difference in the parasitological cure between MBZ and metronidazole (MTZ). The relative risk (RR) is 0.88 (95% CI 0.70-1.10), with a moderate heterogeneity (I²=66%). The prediction interval expected to cover the results of a new trial is wide enough (0.35-2.21) to support both a parasitological relevant difference favoring MBZ and a parasitological relevant difference favoring MTZ.

Conclusions: This study synthesized available evidence on (and documented) the efficacy of MBZ in treating *Giardia* infection in children. There is no difference in efficacy between MBZ and MTZ regarding parasitological cure. Hence, the decision to support any of the competing treatments should be based not in efficacy but, in other characteristics such as tolerance with the treatment or associated costs. Although our results suggest that MBZ may be an effective treatment option for children with *Giardia* infection, they should be interpreted and translated into clinical practice with caution, as the meta-analysis was based on a limited number of heterogeneous RCTs.

Recent Publications:

1. Escobedo A A, Almirall P, Cimerman S and Rodríguez-Morales A J (2016) Sequelae of giardiasis: an emerging public-health concern. *International Journal of Infectious Diseases*. 49: 202-203.
2. Escobedo A A, Almirall P, Robertson L J, Mørch K, Franco R M, Hanevik K and Cimerman S (2010) Giardiasis: the ever-present threat of a neglected disease. *Infectious Disorders - Drug Targets*. 10: 329-348.
3. Escobedo A A, Cimerman S and Almirall P (2011) An old drug against giardiasis: mebendazole as a treatment option. *Infectious Disorders - Drug Targets*. 11: 94-95.
4. Escobedo A A, Lalle M, Hrastnik N I, Rodríguez-Morales A J, Castro-Sánchez E, Cimerman S, Almirall P and Jones J (2016) Combination therapy in the management of giardiasis: what laboratory and clinical studies tell us so far. *Acta Tropica*. 162: 196-205.
5. Escobedo A A, Ballesteros J, González-Fraile E and Almirall P (2016) A meta-analysis of the efficacy of albendazole compared with tinidazole as treatments for *Giardia* infections in children. *Acta Tropica*. 153 (2): 120-127

Biography

Pedro Almirall has his expertise giardiasis pharmacotherapy and public health. He has been working for years as a Clinical Epidemiologist and has experience in research, evaluation, and teaching, both in Cuban hospitals and education institutions. He has published his research in international scientific journals and currently, he is pursuing his PhD.

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