ORIGINAL RESEARCH

23. Effectiveness of Trimethoprim-Sulfamethoxazole in Cyclosporiasis: A Meta-analysis of Randomized Clinical Trials

Sofía Bermúdez Rodríguez[1], Luis Felipe Mosquera Solano[1], Daniela Agudelo Torres[1], Filippo Furlanetto[1], Jorge Enrique Gomez Marin[1]

[1] Faculty of Health Sciences, University of Quindío, Colombia

https://www.youtube.com/watch?v=hJIcIJ1w8oM&list=PLhqNq3xJClbafO0Y5bvBcgMmXpgzJxd44&index=5&t=15773s

Introduction: Cyclosporiasis, caused by *Cyclospora cayetanensis*, is an intestinal infection transmitted via contaminated food and water and is responsible for at least 10% of diarrheal episodes in children aged 0-4 years in endemic regions. Clinically, it manifests as watery diarrhea, fever, and fatigue, posing significant public health challenges because of its association with foodborne outbreaks and the resultant healthcare costs. The primary treatment regimen involves trimethoprim-sulfamethoxazole (TMP/SMX); however, no meta-analysis has validated its use.

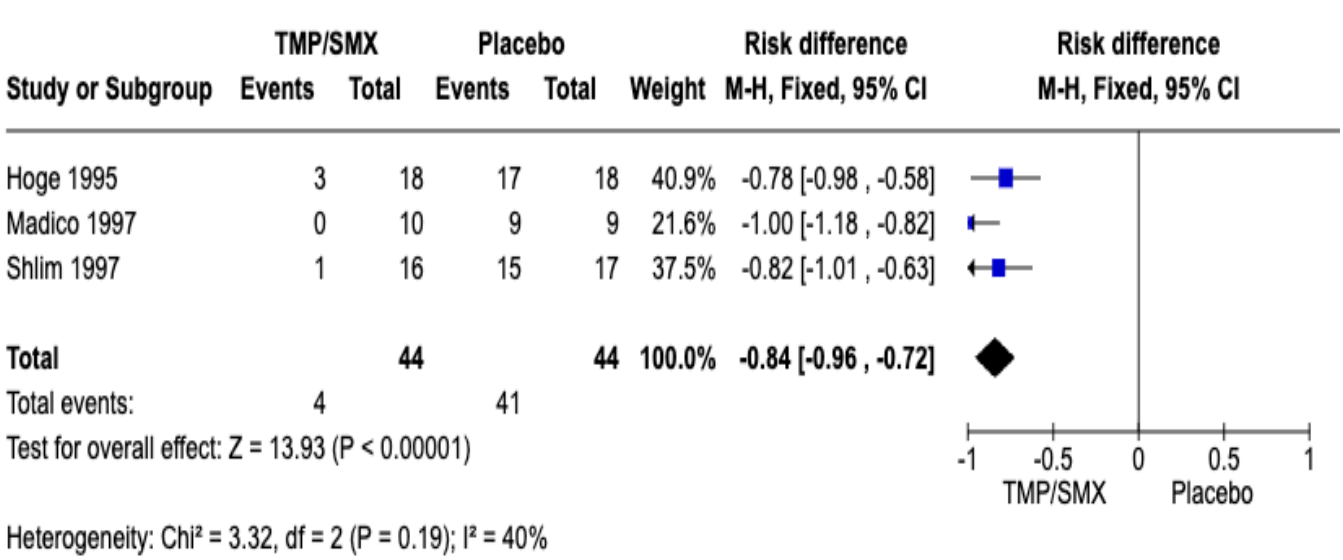
Objective: We performed a meta-analysis to evaluate the efficacy of TMP/SMX compared to placebo for the eradication of oocysts and clinical resolution of cyclospora, drawing on data from randomized controlled trials (RCTs).

Methods: A comprehensive search was performed in PubMed, Scopus, and Google Scholar until May 2025. The studies deemed eligible were randomized controlled trials (RCTs) that included confirmed diagnoses and clinical or laboratory assessments conducted seven days following treatment. The methodological quality of the studies was evaluated using Cochrane's Risk of Bias 2 (RoB 2) tool. Risk differences (RD) with 95% confidence intervals (CI) were calculated using a random-effects model.

Results: Among the 19 studies identified, only three were randomized controlled trials, encompassing 88 patients. The oocyst eradication rates with TMP/SMX ranged from 83% to 100%, in contrast to the persistent infection observed in the placebo group. The reported risk difference (RD) values were −1.00 (Madico et al.), −0.78 (Hoge et al.), and −0.82 (Shim et al) The heterogeneity was moderate, with an I^2 value of 40%. The risk of bias was low for Hoge et al., moderate for Shim et al., and high for Madico et al.

Conclusion: The present meta-analysis demonstrated that TMP/SMX exhibits significant efficacy in eradicating *Cyclospora cayetanensis* and improving clinical outcomes compared to placebo, thereby supporting its designation as the preferred treatment for *Cyclospora*infection. However, the evidence is constrained by the limited number and variable quality of existing trials, underscoring the necessity for larger, high-quality randomized controlled trials (RCTs) to reinforce the therapeutic recommendations.

Figure 1. Forest plot of studies included in the meta-analysis.



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