Gastrointestinal adverse events during methylphenidate treatment of children and adolescents with attention deficit hyperactivity disorder: A systematic review with meta-analysis and Trial Sequential Analysis of randomized clinical trials.


Abstract

OBJECTIVES:
To study in more depth the relationship between type, dose, or duration of methylphenidate offered to children and adolescents with attention deficit hyperactivity disorder and their risks of gastrointestinal adverse events based on our Cochrane systematic review.

METHODS AND FINDINGS:
We use data from our review including 185 randomized clinical trials. Randomized parallel-group trials and cross-over trials reporting gastrointestinal adverse events associated with methylphenidate were included. Data were extracted and quality assessed according to Cochrane guidelines. Data were summarized as risk ratios (RR) with 95% confidence intervals (CI) using the inverse variance method. Bias risks were assessed according to domains. Trial Sequential Analysis (TSA) was used to control random errors. Eighteen parallel group trials and 43 cross-over trials reported gastrointestinal adverse events. All trials were at high risk of bias. In parallel group trials, methylphenidate decreased appetite (RR 3.66, 95% CI 2.56 to 5.23) and weight (RR 3.89, 95% CI 1.43 to 10.59). In cross-over trials, methylphenidate increased abdominal pain (RR 1.61, 95% CI 1.27 to 2.04). We found no significant differences in the risk according to type, dose, or duration of administration. The required information size was achieved in three out of four outcomes.

CONCLUSION:
Methylphenidate increases the risks of decreased appetite, weight loss, and abdominal pain in children and adolescents with attention deficit hyperactivity disorder. No differences in the risks of gastrointestinal adverse events according to type, dose, or duration of administration were found.