Comparative efficacy and safety of methylphenidate and atomoxetine for attention-deficit hyperactivity disorder in children and adolescents: Meta-analysis based on head-to-head trials.

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Abstract

INTRODUCTION:
Comparative efficacy and safety are important issues for appropriate drug selection for attention-deficit hyperactivity disorder (ADHD) treatment. Therefore we conducted a meta-analysis, where we compared atomoxetine (ATX) and methylphenidate (MPH) for ADHD treatment in children and adolescents.

METHOD:
Literature retrieval was conducted in relevant databases from their inception to April 2016 to select head-to-head trials that compared ATX and MPH in children and adolescents. Outcomes like response rate, ADHD Rating Scale (ADHD-RS) score, and adverse events were compared between ATX and MPH treatments. The standardized mean difference (SMD) and risk ratio (RR) with their corresponding 95% confidence intervals (CIs) were used as the effect size for continuous data or dichotomous data, respectively.

RESULTS:
Eleven eligible randomized-controlled trials were included, and two of them were double-blind, while the remaining were open-label. Compared to ATX, MPH showed a higher response rate (RR = 1.14, 95% CI [1.09, 1.20]), decreased inattention (SMD = -0.13, 95% CI [-0.25, -0.01]) and lower risk of adverse events (drowsiness: RR = 0.17, 95% CI [0.11, 0.26]; nausea: RR = 0.49; 95% CI [0.29, 0.85]; vomiting: RR = 0.41, 95% CI [0.27, 0.63]). However, MPH presented a higher risk of insomnia than ATX (RR = 2.27, 95% CI [1.63, 3.15], p < .01).

CONCLUSION:
Results of the meta-analysis add additional evidence of the effectiveness of both ATX and MPH and suggest that MPH should be a first treatment option in most patients with ADHD.