

Response inhibition and emotional cognition improved by atomoxetine in children and adolescents with ADHD: The ACTION randomized controlled trial.

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Abstract

Although the non-stimulant medication atomoxetine is effective for attention-deficit hyperactivity disorder (ADHD) in children and adolescents, there are still significant gaps in our knowledge about whether atomoxetine improves anxiety symptoms or cognition in children. Furthermore, while cognition has been proposed as an intermediate phenotype for ADHD dysfunction, the relationships between clinical and cognitive outcomes are not yet understood. We addressed these knowledge gaps in a controlled trial using objective assessments of both general and emotional cognitive functions implicated in ADHD and in anxiety, which commonly co-occurs with ADHD. A total of 136 children and adolescents with ADHD (ages 6-17years; 80% male; 31.6% with a comorbid anxiety disorder) were enrolled in a randomized double-blind, placebo-controlled, cross-over trial of 6-weeks treatment with atomoxetine. Of these, 109 completed the second cross-over phase. Selected cognitive domains associated with ADHD and anxiety disorders (Sustained attention, response inhibition and fearful face identification) were assessed using a normed, computerized test battery. Symptom outcomes were assessed by parent reports on the ADHD Rating Scale-IV and Conners' Anxious-Shy subscale. For completers, atomoxetine caused a greater improvement in the primary cognitive outcomes of response inhibition and fear identification compared to placebo, but not in sustained attention. Atomoxetine also improved ADHD and anxiety symptoms. Anxiety symptoms improved most for ADHD and anxiety disorder combined, but presence of an anxiety disorder did not moderate any other outcomes. Changes in cognitive and clinical outcomes were not correlated. These findings contribute to the foundations of measurement-based treatment planning and offer targets for probing the mechanisms of atomoxetine action.