Amphetamines and methylphenidate for paediatric ADHD: meta-analysis of n-of-1 trials

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Attention-Deficit/Hyperactivity Disorder (ADHD) is one of the most common neurodevelopmental disorders, with an estimated prevalence of about 5% in school-age children (Polanczyk et al, 2007; Polanczyk et al, 2014) and 2.5% in adults. (Simon V et al, 2009).

The recommended treatment of ADHD is multimodal, including pharmacological and non-pharmacological interventions. Medications for ADHD include psychostimulant (e.g., methylphenidate and amphetamine derivatives) and non-psychostimulant drugs (e.g., atomoxetine and guanfacine).

Psychostimulants are the most common drugs used for ADHD worldwide. A large body of evidence from randomised controlled trials (RCTs), summarised in several meta-analyses in children, adolescents and/or adults, shows that different classes of psychostimulants [e.g., methylphenidate (Castells X. et al. 2011b; Koesters M. et al. 2009; Schachter H.M. et al. 2001; Van der Oord S. et al. 2008) or mixed amphetamine salts (Faraone S.V. and Biederman J., 2002) and other amphetamine derivatives (Castells X. et al. 2011a)] are efficacious, at least in the short term, and generally well tolerated, for the treatment of ADHD core symptoms, with mean effect sizes around 0.8 to 0.9.

However, two recent Cochrane reviews (Storebo et al, 2015; Punja et al, 2016a) questioned the quality of the evidence from available RCTs (see also a previous Mental Elf blog by Chris Hollis on this review).

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