

LETTER TO THE EDITOR

Stimulants Use in Attention Deficit Hyperactivity Disorder (ADHD) Kids – Triumph or Tribulation?

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Key Words: stimulants, stunting growth, cardiosafety, addiction

To The Editor:

Pliszka demonstrated *stimulants* are the *mainstay* of treatment in Attention deficit hyperactivity disorder (ADHD) with effect sizes of 0.8-1.1 (Pliszka & AACAP Work Group on Quality Issues, 2007). Stimulants have been used since the 30s. They are *very effective* and generally *very safe*. Yet, parents are usually reluctant to put their kids on stimulants for a multitude of concerns. Sorely, *inadequate psychoeducation* on the part of clinicians contributes to this *aversive* attitude. Here, I would try to highlight some of these controversies around ADHD medications and examine the extant literature to refute it.

A major concern revolving around stimulants is the dread of *stunting growth* by an average of 2-3 cm. This sounds true given stimulant-induced anorexia; boosting dopamine (DA) tone by stimulant has an inhibitory effect on growth hormone (GH); and as reported by Faraone et al. stimulant might impact negatively cartilage formation (Faraone, Biederman, Morley, & Spencer, 2008). First, slowing of growth velocity has been shown to be part of ADHD complex itself. Second, this slowing is mostly apparent in drug-naïve, early on, taller/heavier physique, in a dose-dependent fashion, and, largely reversible with drug discontinuation. Good news is that kids soon catch up and ultimate adult growth parameters achieved unaffected. Klein et al. found two summers of withholding stimulants were helpful in that regards (Klein, Landa, Mattes, & Klein, 1988). If dietary manipulations and drug holidays prove futile, I usually

opt for add-on low-dose mirtazapine. Mirtazapine helps stimulant-induced anorexia, insomnia, dysphoria, but, most importantly, due to increased nor-adrenergic (NA) drive, sounds pro-cognitive. This is advantageous over the more commonly used cyproheptadine that might have similar actions, but due to its antihistaminic properties, is clearly anti-cognitive which might compromise stimulant response.

Another major concern is *cardiosafety* of stimulants, especially with Canadian warnings regards Addrall® and sudden death. Stimulants are known to increase systolic blood pressure (BP) by 2-5 mmHg and diastolic by 1-3 mmHg. Winterstein et al. (2012) in their review discussed five controlled population-based studies investigating cardiovascular risks of stimulants in children and found rates of serious cardiovascular accidents are extremely small. Recently, Dalsgaard et al. conducted a nationwide prospective cohort study and demonstrated cardiovascular events were rare but twice as likely in stimulant users as in non-users (Dalsgaard, Kvist, Leckman, Nielsen, & Simonsen, 2014). Accordingly, American Academy of Pediatrics does NOT endorse routine ECG screening prior to stimulants initiation.

A third myth about stimulants is the concern over its *addiction* or proclivity to *substance abuse*. This has been refuted by Barkley et al. in a 13-year prospective study (Barkley, Fischer, Smallish, & Fletcher, 2006). Moreover, Wilens et al. in a meta-analysis of six studies found use of stimulant treatment in childhood was in fact protective against subsequent substance abuse (Wilens, Faraone, Biederman, & Gunawardene, 2003). Logically, use of extended release (ER) (e.g. Concerta®) or pro-drug (e.g. Vyvanse®) formulations would obviate these concerns.

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A controversial issue related to stimulants use and long-held by clinicians is that stimulants *exacerbate* both *anxiety* and *tics*. Recently, Coughlin et al. (2015) conducted a meta-analysis of 23 studies and concluded treatment with stimulants significantly reduced risk of anxiety. Castellanos et al. (1997) found no tic exacerbation with stimulant use, except at high doses which was also reversible.

Dissemination of such information through proper psycho-education, ideally coupled with *bibliotherapy*, would allay most of parents' wariness and promote treatment-engagement which would reflect on more kids being adequately treated avoiding myriad of long-term devastating sequelae of unaddressed ADHD.

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