May 2024

Refills

Your dose of drug information in between sessions

What is the evidence for bupropion for ADHD in adults?

Conclusion: The clinical trial evidence in adults with ADHD is too limited to draw confident conclusions on bupropion's efficacy for ADHD symptoms. Bupropion is amphetamine-like; therefore, it has similar adverse events as methylphenidate, amphetamines and atomoxetine.

The BC Provincial Academic Detailing (PAD) service's topic Medications for ADHD: Focus on drug information looks at the evidence for methylphenidate, amphetamines, atomoxetine and guanfacine.[1] Click to book a session with an academic detailing pharmacist in your area. We receive this question during PAD sessions: **What about bupropion?**

a) **Basics**: Bupropion is a norepinephrine and dopamine reuptake inhibitor.[2,3] It is amphetamine-like. In Canada, bupropion is approved for major depressive disorder (Wellbutrin SR®, Wellbutrin XL®), smoking cessation (Zyban®) and chronic weight management in combination with naltrexone (Contrave®). Bupropion is not approved for use in pediatrics (< 18 years).

b) **BC PharmaCare**: Bupropion SR and XL are limited coverage drugs for major depressive disorder.[4] Refer to limited coverage drugs – bupropion for details. PharmaCare covers bupropion (Zyban®) for smoking cessation under the Smoking Cessation Program.

c) **Evidence for ADHD**: A 2018 systematic review of medications for ADHD identified three 6–8 week clinical trials for bupropion, amounting to 261 adults in total.[5] Compared to placebo, there was a statistically significant reduction in ADHD symptoms but the estimate of bupropion's effect was imprecise. The estimate ranged from a possible clinically important effect to a possible clinically unimportant effect (low certainty evidence).

d) **Guidelines**: The Canadian ADHD Resource Alliance's (CADDRA) 2020 guideline identifies bupropion as a potential third-line medication after consultation with a specialist to confirm that first and second-line options have been used adequately.[6] CADDRA classifies bupropion as a "non-stimulant" however it is a sympathomimetic medication that has similar adverse events as methylphenidate, amphetamines and atomoxetine.

e) **Adverse events**: Dose-related adverse events include increased heart rate and blood pressure, decreased appetite, tremor, insomnia, anxiety, agitation.[7] The co-prescribing of bupropion with methylphenidate, amphetamines or atomoxetine may amplify these effects. In Canada, the maximum daily dose for major depressive disorder is 300 mg per day of bupropion due to an increased risk of seizures at higher doses.[2] Toxic doses of bupropion could occur if multiple bupropion-containing products are inadvertently combined (Wellbutrin SR®, Wellbutrin XL®, Zyban®, Contrave®). Misuse (oral, intranasal, injection) has been documented for bupropion and there is the potential for a positive test for amphetamines in urine toxicology.[7]

f) **Drug interactions:** Bupropion is a CYP2D6 inhibitor and can increase the concentration of other drugs metabolized by CYP2D6, including amphetamines and atomoxetine.[1] A 2022 case report of new onset seizures and psychosis was attributed to the combined use of bupropion and atomoxetine.[8]

[1]BC Provincial Academic Detailing Service 2022 Medications for ADHD; [2]Health Canada Drug Product Database; [3]US Food and Drug Administration Approved Drugs; [4]BC PharmaCare Special Authority drug list; [5]Cortese Lancet Psychiatry 2018:5:727-38 (PMID:30097390); [6]Canadian ADHD Resource Alliance ADHD Practice Guidelines 4.1 Edition; [7]BC Provincial Academic Detailing Service 2020 Antidepressants for Major Depressive Disorder; [8]Ju J Clin Psychopharmacol 2022:42:600-2 (PMID:36193909)

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