Bulimia and Attention Deficit Hyperactivity Disorder (ADHD), the role of the stimulant in the treatment of Bulimia

V. Froes¹, H. Afonso¹, F. Leandro¹, I. Varela¹, S. Esteves¹, M. Carneiro¹, Z. Gameiro¹
1. Centro Hospitalar Barreiro Montijo, Psychiatry, Barreiro, Portugal

Objective

Our objective is it to evaluate which are the benefits of using a stimulant in the treatment of Bulimia.

Materials and methods

A non systematic literature search was performed in *pubmed*, *medline* and *uptodate*, using the key words “ADHD and Bulimia”, “Stimulants and Bulimia”, “Lisdexamfetamine and Bulimia”.

Introduction

- Attention deficit hyperactivity disorder (ADHD) is a neurodevelopmental disorder that is associated with many comorbidities, including eating disorders (EDs). (Ptacek et al 2016)
- Evidences from modern neurobiology methods corroborate the abovementioned findings. For example, the Catechol- O-methyltransferase gene, involved in the dopaminergic pathways of ADHD, was also implicated in Bulimia Nervosa (BN). (Yilmaz 2011)
- From a neuroimaging perspective, ADHD and BN share many neural pathways. Abnormalities in these pathways in the frontostriatal circuit may account for the coincidences in these two disorders. (Broft 2012)
- The BN patients showed hyperactivation in parieto-occipital regions and reduced deactivation of default-mode-network (DMN) areas during alerting compared with healthy controls. Conversely, BN patients showed hypoactivation during reorienting and executive attention in anterior cingulate regions, the temporo-parietal junction (TPJ) and parahippocampus compared with HCs, which was negatively associated with global ADHD symptoms and impulsivity, respectively. (Seitz 2016)
- Low striatal DA in BN may impair the ability of patients to make use of alternative reinforcers to binge eating and/or purging.

Results	Reference	Male/female	Age	BN diagnosed at the age of:	ADHD diagnosed at the age of:	Treatment	Follow up
	Drimmer E. 2003	female	42	20	39	Methylphenidate 40 mg/day	Substantial decrease in bingeing and purging in 3 weeks
		female	31	16	31	Levoamphetamine + dextroamphetamine 30mg/day	Substantial decrease in bingeing and purging in 3 weeks
		female	21	18	-	Dextroamphetamine 10mg/day	Full remission in a week
	Dukarm C. 2005	female	19	16	19	Dextroamphetamine 15mg/day	Full remission in 2 weeks
		female	18	16	childhood	Dextroamphetamine 15mg/day	Full remission in 15months
		female	21	16	21	Dextroamphetamine 15mg/day	2 years of full remission
		female	24	15	24	Dextroamphetamine 15mg/day	Substantial decrease in bingeing and purging
		male	15	14	11	Dextroamphetamine 30mg/day	Full remission in a week
		female	17	16	17	Dextroamphetamine 30mg/day	Substantial decrease in bingeing and purging
	Ioannidis K. 2013	female	23	17	23	Methylphenidate 18 mg/day	Substantial decrease in bingeing and purging in 2 weeks
	Keshen A. 2013	female	34	16	34	Levoamphetamine + dextroamphetamine 40mg/day	Full remission of bingeing and purging
		female	20	15	20	levoamphetamine + dextroamphetamine 40mg/day	Substantial decrease in bingeing and purging
		female	23	18	23	levoamphetamine + dextroamphetamine 40mg/day	Full remission of bingeing and purging
		female	22	14	22	levoamphetamine + dextroamphetamine 20mg/day	Significant improvement
		female	32	16	32	dextroamphetamine 20mg/day	Substantial decrease in bingeing and purging

Conclusions

Stimulants seem a promising therapy in Bulimia. However, based on these case reports, no statistic conclusions can be taken. It is still needed controlled trials to explore the efficacy and safety of psychostimulants as a treatment for this condition.

Aaron Keshen & Iryna Ivanova (2013) *Reduction of Bulimia Nervosa Symptoms After Psychostimulant Initiation in Patients With Comorbid ADHD: Five Case Reports*, Eating Disorders: The Journal of Treatment & Prevention ; Drimmer E. (2003) *Stimulant Treatment of Bulimia Nervosa With and Without Attention-Deficit Disorder: Three Case Reports* ; International ward rounds in clinical nutrition ; Dukarm C. (2005) *Bulimia Nervosa and Attention Deficit Hyperactivity Disorder: A Possible Role for Stimulant Medication*; Journal of woman's health ; Ioannidis K. (2013) *Bulimia Nervosa Patient Diagnosed with Previously Undiscovered ADHD in Adulthood: Clinical Case Report*, Literature Review, and Diagnostic Challenges ; Int J Eat Disord ; Seitz J, Hueck M, Dahmen B, Schulte- Rther M, Legenbauer T, Herpertz-Dahlmann B, et al. (2016) *Attention Network Dysfunction in Bulimia Nervosa - An fMRI Study*. ; Yilmaz Z, Kaplan AS, Zai CC, Levitan RD, Kennedy JL. (2011) *COMT Val158Met variant and functional haplo- types associated with childhood ADHD history in women with bulimia nervosa*. Prog Neuropsychophar- macol Biol Psychiatry. ; Ptacek R, Stefano G, Weissenberger S, (2016); *Attention de cit hyperactivity disorder and disordered eating behaviors: links, risks, and challenges faced*; Neuropsychiatric Disease and Treatment ; Broft A, Shingleton R, Kaufman J (2012) *Striatal Dopamine in Bulimia Nervosa: a PET Imaging Study*, Int J Eat Disord