

ADHD AND BIPOLAR DISORDER AMONG ADOLESCENTS: Nosology in question

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SUMMARY

Objectives: The double diagnosis of Attention Deficit Disorder with Hyperactivity, and of bipolar disorder in its depressive or manic phase in children and adolescents is quite common. The present paper examines the clinical descriptions of both disorders, and addresses the methodological and nosological questions they raise.

Method: Review of the literature from Medline, PsycArticles and PsycInfo data bases using the keywords “ADHD, BPD, Adolescence” as well as review of specialised reference works.

Results: Whereas the clinical and epidemiological communities posit the case for a bidirectional association between ADHD and BPD, more thorough analyses using both clinical and epidemiological perspectives suggest two distinct entities. Accordingly, we also discuss various theories accounting for the frequent co occurrence of these two diagnoses.

Conclusions: The double diagnosis of ADHD and BPD not only raises several hypotheses accounting for the emergence of both these syndromes in the clinical description of the same patient, but also reminds us of the limitations inherent in the nosology of mental disorders.

Key words: ADHD - bipolar disorder - adolescence

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Introduction

The double diagnosis of Attention Deficit Disorder with Hyperactivity, and of bipolar disorder in its depressive or manic phase in children and adolescents is quite common. The present paper examines the clinical descriptions of both disorders, and addresses the methodological and nosological questions they raise.

Sometimes we have to make the differential diagnosis between BP and ADHD during adolescence, for example with a restless, excited or even depressed teenager, this diagnosis is complicated not only because there is an overlap of the symptomatology but also because there are some links between these 2 entities and certain components (epidemiological, evolutive, pharmacological) of each entity are still vague, for example Bipolar Disorder during adolescence does not exist in the DSM IV TR, and the reported prevalence of ADHD is variable (Zdanowicz et al. 2005).

Method

We carried out a review of the literature from Medline, PsycArticles and PsycInfo data bases using the keywords “ADHD, BPD, Adolescence” as well as review of specialised reference works.

Results

Whereas the clinical and epidemiological communities posit the case for a bidirectional association between ADHD and BPD, more thorough analyses using both clinical and epidemiological perspectives suggest two distinct entities.

Singh reports that the symptoms of ADHD can be described in 85% of patients suffering from BP, while symptoms of BP can be described in 22% of patients suffering from ADHD (Singh et al. 2006).

Table 1 compares the two conditions.

Table 1. Comparisons of both entities

BP in manic phase is characterized by	Overlap of symptomatology can be on
Mood increase >> nor frank nor constant in ADHD (dysphoria – depression)	(Mania) psychomotor agitation >> hyperactivity (ADHD)
Megalomaniac ideas, ideas flight, psychotic characteristics >> rare in ADHD	(Mania) absent mindedness >> lack of attention (ADHD) irritability >> excitability
Sleep disorders can be present in both entities but are more concomitant with thymic increase in BP >> more persistent in ADHD	

Table 2, based on Russel & Scheffer. (2007) compares the two conditions and their degree of overlap in the manic phase of a bipolar illness.

Table 3 compares the two conditions in the depressive phase of Bipolar Illness.

Table 4 compares the two conditions and their degree of overlap in the depressive phase of a bipolar illness, after Russel & Scheffer. Current Psychiatry Reports 2007.

Table 2. Comparison of the two conditions and their degree of overlap in the manic phase of a bipolar illness after Russel & Scheffer. *Current Psychiatry Reports* 2007

BPD	ADHD	Degree of overlap
Psychomotor agitation	Hyperactivity	Extensive
Impulsive	Impulsiveness	Extensive
Lack of attention	Inattention	Extensive
Irritability	Ubiquity	Extensive
More talkative	Too fast talking	Moderate
Elation		Little
Grandiloquence		Little
Flight of ideas/racing thoughts		Little
Decreased need of sleeping	Difficulty to fall asleep	Little
Increased goal-directed activity		Little
Excessive pleasure activities		Little

Table 3. comparison of the two conditions in the depressive phase of Bipolar Illness

BP in depressive phase is characterized by:	Overlap of symptomatology can be on:
Depressed humour, insomnia, anhedonia, change in body weight	(Dep) Concentration difficulties >< lack of attention (ADHD)
Fatigue, energy loss, hypersomnia, suicidal tendencies	(Dep) Possible psychomotor agitation for example when increase of anxiety >< hyperactivity in ADHD

Table 4. Comparison of the two conditions and their degree of overlap in the depressive phase of a bipolar illness, after Russel & Scheffer. *Current Psychiatry Reports* 2007

	ADHD	BP
♂ / ♀	9 / 1	1 / 2-3
Age of onset	< 7 years	Adolescence Adulthood
Familial history school history	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Testing	ADHD-RS-IV	YMRS HDS
Response to treatment	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Bipolar depression	ADHD	Degree of overlap
Depressed mood	Dysphoria	Extensive
Insomnia	Difficulty to calm down	Extensive
Irritability	Irritability	Extensive
Concentration difficulties	Lack of attention	Extensive
Psychomotor agitation	Hyperactivity	Moderate
Loss of inhibitions	Impulsivity	Moderate
Weight loss/gain	Weight loss with stimulants	Moderate (after stimulant treatment)
Psychomotor retardation		Little
Fatigue or loss of energy		Little
Hypersomnia		Little
Loss of interest in pleasure		Little
Thoughts of death/suicidal tendencies		Little

In real life we see atypical Bipolar Disorder with irritability, hostility and aggressivity with a sub-continuous evolution and in these cases, BP and ADHD are more comorbidities than distinct entities. It remains to be explained why the frequency of double diagnosis is higher than the frequency of each disease taken separately (Masi et al. 2006, Jaunay et al. 2003). This is

why the question remains is there a possible existence of a subtype of BP-ADHD with its own clinical history, therapy and specific prognosis.

Accordingly, we also discuss various theories accounting for the frequent co occurrence of these two diagnoses.

Links between ADHD and BP

Four different types of links have been suggested (Singh et al. 2006, Biederman et al. 1996, Milberger et al. 1995, Masi et al. 2006):

- Overdiagnosis of ADHD in young BP due to overlap of symptoms;
- ADHD is a marker or a prodrome of an early BP;
- ADHD and its treatment involve a BP;
- ADHD-BP is a full entity.

We will discuss each of these theories individually.

1. Overdiagnosis of ADHD in young BP due to symptoms overlap

Statistical analyses with independency tests in case of double diagnosis show that hyperactivity is not overdiagnosed in BP. Nevertheless, when using the same methods, we observe that BP is overdiagnosed in ADHD. This first hypothesis can not explain the comorbidity satisfactorily.

2. ADHD is a marker or a prodrome of an early BP

Three observations can be made here: Patients developing a BP in childhood have significantly more ADHD than adolescents suffering from BPD. Patients with a double diagnosis present their BPD early compared with patients with BP only. Furthermore we observe more ADHD in descendants of bipolar patients (Perlis et al. 2004, Sachs et al. 2000, Nierenberg et al. 2005, Chang et al. 2000, Singh et al. 2006).

3. ADHD and its treatment involve a BP

Some authors observe the early appearance of a BP in patients previously treated by treatments for ADHD (DelBello et al. 2001). Other ones note, in patients with a double diagnosis, the positive effect of a sequential treatment by amphetamines after treatment by thymoregulators has been established (Scheffer et al. 2005).

4. The ADHD-BP is a full entity

Corresponding to this are Familial studies. There is a greater risk of ADHD if one relative of the 1st degree has already had ADHD. BP is more frequent when one has a relative suffering from BPD, BPD - ADHD but not from ADHD alone (Faraone et al. 1997).

These data make think there exists a mixed disorder BP-ADHD, with its own evolution, more often continuous than cyclic (Masi et al. 2006), an earlier beginning, a male predominancy, a more often mixed status, irritability on the first plan, more severe maniac symptoms, increased psychosocial problems, and necessitating a sequential treatment.

However genetics demonstrate observe different genes in the two conditions.

In ADHD we find DAT1 coding for T1-receptor of dopamine and DRD4 associated to D4-receptor. In BP important genes are those for serotonin transporter,

hSERT, for catechol-O-Methyl-Transferase and for Monoamine-Oxydase A.

Neuro-imaging studies concern distinct cerebral zones: In ADHD the corpus callosum, basal nuclei, pallidum and cerebellum are involved while in BP the tonsil and the putamen are involved.

A study using functional neuro-imaging showed differences between BP, ADHD and BP-ADHD patients (Eliez et al. 2000, DelBello et al. 2004, Adler et al. 2005).

Conclusions

The double diagnosis of ADHD and BPD not only raises several hypotheses accounting for the emergence of both these syndromes in the clinical description of the same patient, but also reminds us of the limitations inherent in the nosology of mental disorders. Prospective studies on large samples in different countries will probably bring more precisions about these hypotheses. The fact remains that psychodynamic and biological links combine more than they divide both entities.

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