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Aripiprazole for the Treatment of Antipsychotic-Induced Hyperprolactinemia in an Adolescent Boy

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Introduction

Second-generation antipsychotics (SGA) have numerous metabolic and hormonal side effects (Li et al. 2013). However, there is no standard treatment approach to SGA-induced hyperprolactinemia in adolescents. We present the report of a potential strategy for this condition.

Case

D.S. is a 17-year-old boy with bipolar disorder with psychotic features who was evaluated for short stature of more than two standard deviations below mean. D.S. had stable mood for over 1 year while taking paliperidone 6 mg twice daily and lithium 600 mg each morning and 900 mg at bedtime.

Laboratories revealed elevated prolactin (185.2 ng/mL, normal: 1.9–14.5 ng/mL) and low total testosterone (34 ng/dL, normal: 158–826 ng/dL), with normal cortisol and thyroid stimulating hormone. The endocrinologist's recommendation was to rapidly decrease D.S.'s prolactin levels and begin exogenous growth hormone to increase height before growth plate fusion (Table 1).

Paliperidone was cross-tapered with aripiprazole over 1 month. Three weeks after discontinuation, his prolactin was 124 ng/mL (–33%), but he had an exacerbation of mood and psychotic symptoms. Psychomotor agitation and akathisia prompted a switch to valproic acid. Over the following weeks, D.S. developed constant head and tongue movements suggestive of withdrawal of dyskinesia, along with grandiose delusions with command visual and auditory hallucinations. Although his prolactin level normalized to 5.2 ng/mL, the patient as well as his family and treating clinicians decided to restart his original regimen. Head and tongue movements completely resolved within 5 days, and psychotic symptoms resolved over the next 2 weeks.

D.S. was then started on concomitant aripiprazole 2.5 mg daily. On paliperidone and aripiprazole, he experienced continued psychiatric stabilization without return of akathisia or dyskinesias. He had an improvement in both prolactin (90.5 ng/mL) and total testosterone (45 ng/dL) 2 months after initiation of dual therapy.

Discussion

The conventional strategies for treatment of SGA-induced hyperprolactinemia include decreasing SGA dosage or changing antipsychotics (De Berardis et al. 2014). These are difficult options for patients who have achieved stability on their present regimen or need rapid treatment.

SGA-related hyperprolactinemia is due to D2 receptor antagonism within the tubuloinfundibular pathway. In contrast, it has been proposed that aripiprazole has a prolactin-neutral effect within this pathway because of its action as either a D2 partial agonist or a functionally selective D2 ligand (Urban et al. 2007). Aripiprazole has higher D2 binding affinity than other SGAs along the tubuloinfundibular pathway. Therefore, it has been hypothesized that

Table 1. Patient's Drug Regimen, Laboratory Values, and Clinical Status Throughout Treatment

Time (weeks)	*SGA, mg (daily dosage)*	*Prolactin, ng/mL (% change from baseline)*	*Total testosterone, ng/dL (% change from baseline)*	*Clinical observation*
0 (baseline)	Paliperidone (12)	185.2	34	Stable
8 weeks	Aripiprazole (5)	124 (–33)	Not measured	Agitation akathisia
16 weeks	None	5.2 (–97)	Not measured	Psychosis withdrawal dyskinesia
24 weeks	Paliperidone (12) Aripiprazole (2.5)	90.5 (–51)	45 (+32)	Stable, no EPS

EPS, extrapyramidal symptoms; SGA, second-generation antipsychotics.

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SGA-induced hyperprolactinemia could be tempered by coadministration of aripiprazole without sacrificing therapeutic efficacy along other pathways (De Berardis et al. 2014).

Safety and efficacy with this approach have been demonstrated in adults in a meta-analysis of randomized controlled trials (Li et al. 2013). We found only a single case report of this strategy in an adolescent patient (Wahl and Ostroff 2005). In this report, dual therapy provided a balance between control of symptoms and hormone levels, which was acceptable to the patient, family, and treatment team.

In conclusion, adjunctive aripiprazole is a potential treatment option for SGA-induced hyperprolactinemia in youth who have achieved clinical stability on SGA monotherapy.

Disclosures

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