

Extrapyramidal symptoms resulting from risperidone use in a four year old child: A case report

Ehsan Elahi, Umar Zia, Sidrah Andleeb, Omar Akhlaq Bhutta

Abstract

Extrapyramidal symptoms (EPS) are the major constraint in the use of antipsychotic agents. It is usually forewarned whenever therapy with these agents is considered. In this case, we present a child diagnosed with relapsed Wilm's tumour, who developed EPS just after a short duration of initiation of risperidone prescribed as an appetite stimulant. The patient became symptom free after management and risperidone was discontinued. Although risperidone has been approved to treat different indications in adolescents and children, scarce scientific evidence and our case report, are suggestive of further studies to establish safety of risperidone use in preschool children.

Keywords: Extrapyramidal symptoms, antipsychotics, preschool child, Risperidone, Case report.

Introduction

Extrapyramidal symptoms (EPS) are most familiar side effect in patients treated chronically with first generation antipsychotics (FGAs). Studies showed that risk of EPS with Second generation antipsychotics (SGAs) is lower as compared to FGAs, however considerable incidence of EPS is still there suggesting that SGAs too are not safe as expected earlier.¹ Among the SGAs, risperidone was approved for use in schizophrenia in adolescents and as a short term treatment for irritability and autism in children and adolescents.² It is also prescribed for children "off label" in eating disorders resulting from depression.³ Although not well established, a little incidence of risperidone induced EPS in paediatric patient, has been documented,⁴ thus should not be overlooked as its occurrence in the paediatric population owing to the use of SGAs has been published as well.⁵ Our case is unique in a way that EPS were observed in a child.

Case Report

A 4-year-old young female child with left non-metastatic Wilm's tumour (W.T), was diagnosed with local relapse 3 months after end of treatment (EOT). Treatment plan was changed and patient was switched to second line of chemotherapy. After first cycle of second line chemotherapy, Ifosphamide, Carboplatin and Etoposide (ICE), she was admitted to be treated for chemotherapy induced febrile neutropenia (FN) and grade II mucositis. Second day following admission, nasogastric (NG) tube was passed as she was not taking by mouth even after extensive counseling, and the weight had dropped significantly from 13.8 kg to 10.7 kg within a month. The Hamilton depression rating scale (HAM-D) was used and the level of depression of patient was found severe with a score of 19. Thus the abrupt loss of weight was inferred secondary to decreased appetite because of depression associated with primary disease relapse and grade II mucositis post chemotherapy. On the day of discharge from the hospital; psychiatrist was consulted for any possible intervention required to overcome rapid loss of weight secondary to depression as it was found as a major constraint to continue with the high dose chemotherapy for relapse. Data was searched regarding use of risperidone in the age group of <5years. After consensus between primary physician and psychiatrist on 19-10-2016, it was decided to try risperidone oral solution 0.25 mg/day for a short duration. Patient's attendants were informed regarding planned therapy and its side effects; and they agreed with the plan. All the baseline labs (Sodium= 133mmol/L, Potassium= 4.5mmol/L, Serum creatinine= 0.27mg/dL, Total bilirubin= 0.28mg/dL) were within normal limits before the initiation of risperidone.

Two days following discharge on 21-10-2016, patient reported in emergency department with involuntary movements. The movements appeared 30 minutes after the third dose of risperidone. These movements lasted for about 20 minutes and then ameliorated themselves. The symptoms included, tongue protrusion, drooling, inability to speak (characteristics of buccolingual dyskinesia), up rolling of eyes and involuntary tremor like movements.

Department of Pharmaceutical Services, Shaukat Khanum Memorial Cancer Hospital & Research Centre, Lahore, Pakistan.

Correspondence: Ehsan Elahi e-mail: ehsan_ilahi21@hotmail.com

EPS was diagnosed on 21st October 2016. Patient was managed conservatively, with intravenous dimenhydrinate 14mg, because diphenhydramine was not available. Symptoms disappeared; patient was vitally and clinically stable with Glasgow coma scale (GCS) 15/15 and started speaking full sentences. Risperidone was discontinued and was not re-challenged anymore. Written informed consent was taken from the patient's attendant prior to writing and reporting the case.

Patient was followed for EPS or any other relevant symptoms for subsequent three days and once found clinically stable and symptom free; was considered fit for further chemotherapy as planned on 25-10-2016.

Discussion

Risperidone renders the advantage of decreased prevalence of EPS when compared with conventional antipsychotics.⁶ Its use in young children is contentious owing to the lack of controlled studies, especially if tolerability and safety of this agent is concerned. Local data to find safety description was retrieved but no relevant source was found. On the other hand a globally published study was conducted with an intention to establish a short term safety profile, though found tolerability of risperidone in preschool children, suggested a large scale investigational study to establish a safe and efficacious use.⁷

Weight gain with use of risperidone has been demonstrated by certain studies⁸ reflecting a possible relationship between weight gain and increased appetite.^{7,8} Since risperidone is a high affinity dual antagonist of serotonin 5-HT₂ and D₂ receptors,⁹ and has the ability to change either serotonergic or dopaminergic levels in brain, it can impact the hypothalamic hunger and satiety centers resulting in the stimulation of appetite and may become the basis for "off label" prescribing of risperidone in eating disorders (3). This is a controversial use of risperidone but limited supporting data has been published.¹⁰ Our case belongs to a cancer patient who was young enough to be considered as a preschool child with no family history of movement disorders. Studies for the purpose of identifying safe and efficacious use of risperidone are quite limited in number and are unable to provide sufficient data to draw a conclusive report on the use and adverse event profile of risperidone in this age group. EPS in this case was much noteworthy exhibiting

buccolingual dyskinesia, eyes up rolling and involuntary tremor like movements, and led to the discontinuation of risperidone. Thus it is suggested to practice cautious use of risperidone in young children quantifying risk to benefit ratio before initiation of therapy especially when considering "off label" risperidone use. This case report will serve as local data and can be considered to plan and initiate further large investigational studies on this age group to establish definite safety and efficacy of risperidone in this population.

Conclusion

This case report demonstrates that the use of risperidone in pre-school child as off label appetite stimulant was associated with significant EPS. This adverse effect needs to be considered while using risperidone in children.

Disclaimer: The abstract of this manuscript has not been previously presented or published in any conference.

Conflict of Interest: There are no financial, personal, or professional interests.

Funding Disclosure: No funding sources to disclose.

References

1. Correll CU, Leucht S, Kane JM. Lower risk for tardive dyskinesia associated with second-generation antipsychotics: a systematic review of 1-year studies. *Am J Psychiatry*. 2004; 161:414-25.
2. Margari L, Matera E, Craig F, Petruzzelli MG, Palmieri VO, Pastore A, et al. Tolerability and safety profile of risperidone in a sample of children and adolescents. *Int Clin Psychopharmacol*. 2013; 28: 177-83.
3. Ravindran AV, Bradbury C, McKay M, da Silva TL. Novel uses for risperidone: focus on depressive, anxiety and behavioral disorders. *Expert Opin Pharmacother*. 2007; 8: 1693-710.
4. Herath A, Goonawardena K, Kotalawala S, Fazmin KF, Seneviratne S. Prescribing pattern and monitoring of children with neuro developmental disorders who were treated with risperidone at Lady Ridgeway Hospital, Colombo. *Sri Lanka J Psychiatry*. 2016; 7:15-17.
5. Wonodi I, Reeves G, Carmichael D, Verovsky I, Avila MT, Elliott A, et al. Tardive dyskinesia in children treated with atypical antipsychotic medications. *Mov Disord*. 2007; 22:1777-82.
6. Umbricht D, Kane JM. Medical complications of new antipsychotic drugs. *Schizophr Bull*. 1996; 22:475-83.
7. Luby J, Mrakotsky C, Stalets MM, Belden A, Heffelfinger A, Williams M, et al. Risperidone in preschool children with autistic spectrum disorders: an investigation of safety and efficacy. *J Child Adolesc Psychopharmacol*. 2006; 16:575-87.
8. Munarriz R, Bennett L, Goldstein I. Risperidone in children with autism and serious behavioral problems. *N Eng J Med*. 2002; 347: 1890-1.
9. Nyberg S, Farde L, Eriksson L, Halldin C, Eriksson B. 5-HT₂ and D₂ dopamine receptor occupancy in the living human brain. *Psychopharmacology (Berl)*. 1993; 110: 265-72.
10. Beato Fernández L, Rodríguez Cano T. Antipsychotics in treatment of eating disorders patient: a study with risperidone. *Actas Esp Psiquiatr*. 2004; 33: 33-40.