

A Case Report on Risperidone Induced Prolactinoma

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Abstract

Risperidone is a second generation antipsychotic reported to cause hyperprolactinemia due to its D2 receptor antagonism, which may induce amenorrhea, altered menstrual cycle, loss of libido and increase the long-term risk of osteoporosis. However, to our knowledge, all previous reports have focused on risperidone induced hyperprolactinemia. Here we are presenting a rare case report on prolactinoma caused by risperidone.

Keywords: Risperidone; Adverse Drug reaction; prolactinoma.

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Introduction

Prolactinomas are prolactin secreting pituitary tumors that account for 40% of the pituitary adenomas.¹ An observed elevation in serum prolactin level is often due to a drug-induced benign pituitary tumour (prolactinoma), with risperidone utilization apart from other antipsychotic medications in causing pituitary tumors, especially in women.² Risperidone being an atypical antipsychotic cause hyperprolactinemia by blocking D2 dopamine receptors and therefore dopamine action. Because dopamine inhibits prolactin release from the pituitary gland, the drugs which decrease dopaminergic tone results in elevated prolactin levels.³ Hence risperidone by blocking dopamine 2 receptor can induce certain types of pituitary hyperplasia.²

Case Report

A 35 year old woman with significant psychiatric

history of paranoid schizophrenia presented with complaints of suspiciousness, talking and smiling to self, unable to do work, disturbed sleep, auditory hallucination, fearfulness and feeling angry since 7 years. She took multiple consultations from different psychiatrists and was taking Tablet Risperidone 4 mg and Tablet Carbamazepine 200 mg since 2009.

She came to our tertiary care teaching hospital and was advised with many laboratory investigations. Her reports were normal except thyroid function test (Hypothyroidism) and serum prolactin level (Hyperprolactinemia; >200ng/ml). For further clarification she underwent a scanning which revealed features suggestive of pituitary microadenoma (prolactinoma) involving right posterior-lateral aspect of anterior pituitary. Physician assessed that risperidone was the cause of increased prolactin levels and prolactinoma. Her medication was then switched on to olanzapine 20mg for paranoid schizophrenia but, it did not show significant decrease in prolactin levels and

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hence tablet bromocriptine 1.25 mg was added to alleviate the increased prolactin levels and to revert prolactinoma.

Discussion

Risperidone exerts an acute and persistent effect on serum prolactin to a greater extent than the other atypical antipsychotics by blocking dopamine D2 receptors in the anterior pituitary. Prolactin levels are strongly correlated with risperidone dose. Risperidone has been shown to occupy the D2 receptor by 82% at 6mg and 72% at 3mg.⁴

According to the pharmacovigilance study done by Szarfman et.al, pituitary tumors were higher among patients treated with risperidone than with other antipsychotics. He interpreted that a causal relationship exists between risperidone and pituitary adenoma based on the reports of adverse events due to antipsychotics. The reported ratios implied that pituitary tumors were 8-fold higher in patients treated with risperidone than in olanzapine, 31-fold higher than in quetiapine treated patients, 6-fold higher than in ziprasidone treated patient and 3-fold higher than in haloperidol treated patients.⁵

Dopamine agonists have been in clinical use for many years and remain the fundamental therapy for prolactinomas. Most commonly used dopamine agonists are bromocriptine and cabergoline.⁶

In this case report, there is a clinical significant relationship between long-term risperidone administration and pituitary adenoma. The patient also shows increased serum prolactin levels (hyperprolactinemia). Although there is a causal relationship between the administration of amisulpride and increased prolactin levels; in this patient hyperprolactinemia and resultant prolactinoma are featured only due to risperidone. In order to reduce the further elevation in prolactin levels, olanzapine was added as a substitute to risperidone. For the resolution of prolactinoma, dopamine agonist bromocriptine was added.

Conclusion

Findings from this study suggest that the long term use of risperidone is associated with the occurrence of pituitary adenoma and concurrently hyperprolactinemia. For the patients with schizophrenia and a prolactinoma, the endocrinologist, psychiatrist and clinical pharmacist should work in concert with one another

and with the patient to monitor tumour size, serum prolactin level and adherence to antipsychotic medication. Hence it is recommended to evaluate serum prolactin levels annually in patients taking risperidone to see if there is any indication of a medication-induced pituitary prolactinoma which could suggest the need to stop primary drug treatment and /or switch to an alternative drug.

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Conflicts of Interest

Authors declare no conflict of interest

Abbreviation used

D2 receptor: Dopamine2 receptor

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