WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
SJIF Impact Factor 6.805
Volume 5, Issue 8, 1393-1396. Case Report ISSN 2277– 7105

CASE REPORT ON RISPERIDONE INDUCED HYPERPROLACTINEMIA ON SHORT-TERM USE

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Article Received on
28 May 2016,

Revised on 19 June 2016,
Accepted on 10 July 2016

DOI: 10.20959/wjpr20168-6740

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ABSTRACT

Risperidone, atypical antipsychotic widely used for the treatment of schizophrenia has high potential to induce hyperprolactinemia. The effect may be symptomatic or asymptomatic. Here, a patient with hyperprolactinemia has been reported with no symptoms of the adverse effect. Initially the patient had normal prolactin level, when the dose was increased due to ineffectiveness of the drug simultaneously prolactin level also raised which was determined through routine lab investigation. The drug was stopped immediately and switched over to Olanzapine 10mg/day. The other choice of treatment is to add dopamine agonist or Aripiprazole to attenuate the effect.

KEY WORDS: Risperidone, atypical antipsychotic, Aripiprazole.

INTRODUCTION

Prolactin is an anterior pituitary hormone, produced by lactotrophs composed of a single chain protein. It plays an important role in the process of reproduction, affects water and electrolyte balance, development, metabolism, immune-regulation and behavior. In newborn infants prolactin level is very high and declines during the first few months of life. Among adults, prolactin level is higher in women, especially during pregnancy, and reaches peak level during the night. Dopamine can decrease prolactin levels while thyrotropin-releasing

hormone, vasoactive intestinal neuropeptide, opioids, and serotonin [5-hydroxytryptamine (5-HT)] can increase prolactin levels.[1-3]

Hyperprolactinemia is an important but neglected adverse effect of antipsychotic medication and is clinically defined as a plasma prolactin level of >18ng/mL for men and >22ng/mL for women. It occurs frequently with conventional antipsychotics and some atypical antipsychotics (Risperidone and Amisulpride) but is rare with other atypical antipsychotics (Aripiprazole, Clozapine, Olanzapine, Quetiapine, Ziprasidone).[4] During antipsychotic treatment prolactin levels can rise ten fold or more above pretreatment values. Hyperprolactinemia has been reported to be associated with abnormalities of lipid metabolism-hypertriglicerydemia and hypercholesterolemia.[1]

Elevated prolactin in men may cause erectile dysfunction, ejaculatory dysfunction, gynecomastia, and decreased libido whereas in females, menstrual disturbances, galactorrhea, gynecomastia and sexual dysfunction occurs. Chronic hyperprolactinemia increases risk for osteoporosis, cardiovascular disease, and breast cancer. For this reason the terms 'prolactin-sparing' and 'prolactin-raising' are more useful than 'atypical' and 'conventional' when considering the effect of antipsychotic drugs on serum prolactin.[1]

CASE REPORT

A 27 year old male admitted in rehabilitation center of a neuropsychiatric hospital was shifted to ICU due to sudden agitation and aggressive behavior with suicidal attempt. The patient was diagnosed with paranoid schizophrenia and was on Risperidone 2mg orally twice a day, Trihexyphenidyl 2 mg and Lorazepam 2mg once daily for past one month. The patient was given injection Fluphenazine 50mg as stat to calm down the patient. The dose of Risperidone was increased to 8mg/day orally as there was no significant improvement in response. The patient was shifted back to the ward three days later and continued the therapy. Two weeks later, the routine lab investigations showed an abnormal rise in prolactin level - 92ng/ml. The observed value was five times the normal (2-18ng/ml), but the patient did not show any symptoms of typical hyperprolactinemia. Risperidone was discontinued and switched over to olanzapine 10mg/day orally along with Trihexyphenidyl 2mg and Lorazepam 2mg once daily. 15 days later lab investigations were repeated which showed 22ng/ml prolactin level.

DISCUSSION

Risperidone is an atypical antipsychotic drug used for the treatment of schizophrenia at atherapeutic range of (4mg- 16mg) per day which undergoes extensive metabolism in liver

and get converted to 9-hydroxyrisperidpne.[5] The administration of antipsychotics which act on dopamine receptors (especially D2) in the tuberoinfundibular pathway of the brain reduces the dopaminergic input to the lactotroph cells resulting in rapid increase in prolactin secretion (hyperprolactinemia).[6] It has been reported that 48%-93% of pre-menopausal women and 42%-47% of men taking antipsychotic medications have hyperprolactinemia.[7] Rainkaet al., says that there is a strong relation between the increasingrisperidone dose and prolactin level.[8]

There are chances of development of extrapyramidal symptoms and other adverse effects like metabolic changes (hyperglycemia,dyslipidemia, weight gain), orthostatic hypotension, leukopenia, neutropenia, agranulocytosis, dysphagia, seizures, priapism.[5] Hyperprolactinemia is frequently neglected because of its clinical manifestations such as sexual dysfunction that tend to be under reported by patients due to hesitation while healthcare providers are reluctant to ask about the symptoms.

In this case, the patient was treated with risperidone 2mg initially which did not produce any therapeutic effect later the dose was titrated to 8mg/day which resulted in hyperprolactinemia. If a drug is taken continuously, patient becomes dependent on particular level of the drug. For this reason there are chances to experience withdrawal symptoms after stopping the drug abruptly. The withdrawal symptoms of risperidone are anxiety, depression, fatigue and dizziness. So it is recommended to tapper the dose and stop the drug before switching over to the next agent.[9]

Management of hyperprolactinemia: If the patient remains asyptomatic with raised prolactin continue antipsychotic and monitor for symptoms. If the patient is symptomatic with raised prolactin the following strategies can be adopted

- Dose reduction or withdrawal of the drug
- Substitution of current antipsychotic with another drug causing less potential to elevate the prolactin level.
- Low dose of aripiprazole should be given if prolactin levels are not normalized after 4 weeks of treatment, otherwise discontinue it. This fact is supported by the case report of Walter et al.[10]
- Dopamine agonists like cabergoline, bromocriptine, quinagolide, amantadine can be added to the regimen.

CONCLUSION

This case report concludes that the increasing dose of risperisdonedirectly increase the level of prolactin in blood. It is recommended to take routine blood investigations to monitor the prolactin level in patients receiving the antipsychotics which are dopaminergic antagonists on short term or long term. Otherwise hyperprolactinemia attenuating agents or dopamine agonists has to be added to the treatment. As the consequences of hyperprolactinemia is potentially serious, attention is inescapable.

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