Case Report

Hyperprolactinemia in an Adolescent Patient Within 36 Hours After Initiation of Risperidone

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Abstract

Objective: Hyperprolactinemia due to the use of antipsychotic medication is well recognized. A case of an adolescent female psychotic patient, who developed significant symptomatic hyperprolactinemia on a low dose of risperidone within two days of initiation is described. Methods: Patient had been treated with risperidone for a psychotic illness and serum prolactin levels were assayed the day after the initiation of risperidone therapy revealing hyperprolactinemia, associated with clinical symptoms of hyperprolactinemia. Risperidone was withdrawn and the hyperprolactinemia subsided in less than two weeks. During this period an MRI scan with contrast also displayed a bulky pituitary which was suspected and then discounted as an adenoma. Conclusions: Authors recommend baseline and regular monitoring of prolactin levels in adolescents who are prescribed risperidone, especially due to paucity of knowledge of long term ill effects of high serum prolactin (German J Psychiatry 2007; 10: 116-118).

Keywords: adolescent, hyperprolactinemia, pituitary microadenoma, risperidone

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Introduction

Prolactin is a single chain polypeptide secreted by acidophilic lactotrophs of anterior pituitary. Prolactin secretion is under the inhibitory influence of Dopamine. Dopamine from arcuate nucleus reaches the pituitary via hypothalamo-hypophysial circulation and acts as a prolactin inhibitory factor. Prolactin’s primary function is to stimulate lactation. However it has other diverse effects(Kleinberg et al., 1999) especially in pathologically high levels, including galactorrhea (Popli et al., 1998), mastalgia, delayed periods, anovulatory infertility, loss of libido, vaginal dryness, impotence, erectile dysfunction and osteoporosis (Biller et al., 1992; Kayath et al., 1993). Even a link between high prolactin levels and susceptibility to breast cancer (Mershon et al., 1995, Strungs et al., 1997) was suggested, as some of the human breast cancer cells in tissue culture were prolactin sensitive.

In psychiatric practice most common culprits are the antipsychotics (Meltzer et al., 1976, Dickson et al. 1995, Hellings et al. 2005). Many of the conventional antipsychotics and some of the atypical antipsychotics have a potential to cause hyperprolactinemia. These antipsychotics due to their inhibitory effect on Dopamine receptors, especially the D2 type receptors, release the inhibitory control of prolactin secretion and lead to excess secretion of prolactin.
Case Report

A 15-year old girl presented with symptoms of psychosis of recent onset. She believed that one of her teachers was a devil's associate and that he was planning to annihilate the entire world's population. This belief was of delusional intensity. She also had vivid dreams on a similar theme, for the fear of which she was unable to sleep for extended periods of time. She also complained on one occasion where she saw the world upside down soon after waking up. This episode only lasted a few minutes. This symptom also did not recur. Her medical history was significant for dysfunctional uterine bleeding for which she takes tranexamic acid.

Physical examination was unremarkable, including normal vital signs and normal cardiovascular, respiratory and neurological examination. Her most recent menstruation was approximately four weeks ago. A psychiatric assessment led to diagnosis of Acute and Transient Psychotic Disorder (ICD-10 F23) and risperidone 0.5 mg orally, twice daily was prescribed.

After being on risperidone for 32 hours, she gave samples for haematological investigations. Serum prolactin was raised at 1300μg/L (normal range: 50-425). All other tests including haematological, biochemical as well as thyroid and liver function tests were within normal limits. Upon receiving the results risperidone was discontinued. The high prolactin level subsided.

However due to the recency of therapy with risperidone, clinical suspicion fell upon any preexisting pituitary anomaly. She underwent an MRI scan with contrast, which showed bulky pituitary with convex upper margin extending two millimetres above the sella. There was also subtle displacement of the infundibulum and subtle focal signal change within the right side of the gland suggestive of adenoma. It was considered equivocal by the Radiologist and was not considered to be an adenoma by the paediatric endocrinologist.

Prolactin levels assayed on the day of discontinuation of risperidone were also raised at 2305μg/L. However, 15 days after the discontinuation, prolactin levels receded and were found to be in normal range at 176μg/L. Besides the biochemical recovery, the clinical symptoms of hyperprolactinemia such as mastalgia, galactorrhoea as well as amenorrhoea also subsided.

Discussion

The relationship between atypical antipsychotics and raised serum prolactin levels is well known. However this case report suggests the rapidity and extent, the prolactin levels can raise. However the extent to which this was responsible for the episode of visual distortion the patient experienced on one occasion is equivocal.

There are two possible hypotheses for the events. One possibility is that due to an adolescent pituitary that was already more sensitive to the disinhibitory effects of risperidone and was also responsible for her dysfunctional uterine bleeding. The MRI scan appearances of bulky pituitary with what seemed equivocally as an adenoma are compatible with this hypothesis. The opinions of the paediatric endocrinologist and the radiologist are suggestive of the above. Alternate possibility is that the risperidone caused the appearances on MRI and is solely responsible for the clinical scenario. If a repeat MRI scan shows a normal appearing pituitary gland, that may add weight to this hypothesis. However, there are no clinical indications to repeat the MRI scan.

Adverse effects of hyperprolactinemia in adults is better understood compared to children and adolescents. Which ever mechanism led to the above clinical scenario, the common outcome was that of hyperprolactinemia. Considering the variety and extent of concerns associated with long term hyperprolactinemia, it is advisable to keep it in mind and monitor both clinically and biochemically on a regular basis.

References


