Case Report

RISPERIDONE-INDUCED DIABETES INSIPIDUS IN SCHIZOPHRENIA

Mohamad Shaufeq Aziq Sharool Anuar & Mohd Jamil Yaacob*

Kulliyyah of Medicine & Health Sciences, Universiti Islam Antarabangsa Sultan Abdul Halim Mu'adzam Shah, 09300 Kuala Ketil, Kedah, Malaysia.

ARTICLE INFO

Corresponding author:
Prof. Dr. Mohd Jamil Yaacob

Email address:
drmohdjamil@unishams.edu.my

Received:
November 2023
Accepted for publication:
December 2023

Keywords:

schizophrenia;
psychiatric;
risperidone;
diabetic insipidus.

ABSTRACT

Miss M, a 46-year-old Malay woman diagnosed with Schizophrenia, exhibited complex psychiatric symptoms, including persecutory delusions and auditory hallucinations. A recent switch to risperidone resulted in distressing symptoms, including polyuria and polydipsia, raising concerns about possible Risperidone-induced Diabetes Insipidus. Laboratory findings indicated electrolyte imbalances, prompting referral to an Endocrinologist for further investigation. Mrs. M's case highlights the need for comprehensive assessments in patients experiencing adverse effects related to Risperidone.. These include gradual dose reduction or discontinuation of Risperidone, monitoring of hydration and electrolyte balance. Psychoeducation on potential adverse effects is essential to detect early adverse events.

INTRODUCTION

Risperidone, a second-generation antipsychotic medication widely prescribed for conditions such as Schizophrenia and Bipolar disorder, has demonstrated efficacy in managing psychiatric symptoms. However, its use has been associated with various side effects, one of which is the development of diabetes insipidus. Diabetes Insipidus is a rare but noteworthy adverse event characterized by excessive thirst and polyuria, stemming from the impaired regulation of water balance in the body. While the precise mechanisms through which Risperidone induces Diabetes Insipidus remain under investigation, emerging evidence suggests a connection between the drug and disruptions in antidiuretic hormone function. This article aims to provide an overview of the potential link between Risperidone use and the development of Diabetes Insipidus, exploring the current understanding of its pathophysiology and implications for clinical practice.

CASE PRESENTATION

Miss M, a 46-year-old Malay woman residing in Yan, Kedah was diagnosed with Schizophrenia when she was 18. Miss M presents with a complex psychiatric condition characterized by persecutory delusions, specifically involving a belief that she possesses sensitive information about the Malaysian government. In addition to the delusions, the patient reports experiencing auditory hallucinations, including whispers and voices that reinforce her paranoid beliefs. This combination of symptoms has significantly impacted her daily functioning, leading to heightened anxiety, social withdrawal, and distorted perceptions of reality.

Miss M's belief in a government conspiracy has intensified due to the auditory hallucinations, further fuelling her fears of being monitored and targeted by government agents. The patient describes the voices as accusatory and threatening, contributing to her overall distress. Ms M reports persistent feelings of being surveilled and targeted by government agents, whom she believes are monitoring her every move. She describes experiencing intense fear and suspicion towards strangers, convinced that they are part of a plot to harm her due to her knowledge. The patient has altered her daily routines and habits to avoid perceived threats.

Miss M is the eldest of four siblings, living with her mother in a single terrace house in Yan, Kedah and her father has passed away due to old age. There is no notable family history of medical or psychiatric conditions. Considering the family dynamics and support system becomes crucial in addressing Miss M's overall well-being. Currently single and not employed, Miss M maintains independence in activities of daily living but requires supervision from her mother.

For her current complaint, she underwent a

psychiatric admission from 30 October 2023 to 9 November 2023 at Hospital Alor Star due to reporting symptoms of neglecting personal hygiene, insomnia, nocturnal wandering, and causing distress to her mother. Before admission, the patient was prescribed intramuscular Fluanxol (flupentixol) 40 mg, oral olanzapine 20 mg once nightly, oral Artane (trihexyphenidyl) 2 mg once daily in the morning, and clonazepam 0.5 mg. On her discharge, the doctors changed the antipsychotics from Olanzapine 20 mg once nightly to Risperidone 2 mg once morning and 4 mg once at night. The patient was then given a follow-up on 15 November 2023.

Miss M attended the Psychiatric clinic follow-up on 15 November 2023 and suddenly presented with distressing symptoms including akathisia, polyuria, polydipsia, extreme thirst, and increased urine frequency. Miss M however, denies any dysuria, hallucinations, delusions, or nocturnal wandering. Her living conditions are stable, with reliable access to utilities, and there are no apparent significant social stressors.

Laboratory examination results reveal a sodium level of 124 and potassium of 3, indicating electrolyte imbalances. CT brain was uneventful. Full blood count, urinalysis, and capillary blood glucose were normal. Serum osmolality was 356 mmol/kg. These results might indicate possible Diabetes Insipidus. Thus, the patient was then referred to an endocrinologist for further investigations.

The clinical presentation and temporal relationship between Miss M's recent switch to risperidone and the onset of symptoms raise concerns about possible Risperidone-induced Diabetes Insipidus. Comprehensive investigations are crucial for a more thorough understanding. The combination of Miss M's recent medication change to risperidone and the onset of polyuria, polydipsia, and extreme thirst permits a thorough investigation into the possibility of Risperidone-induced Diabetes Insipidus.

DISCUSSIONS

Risperidone, an atypical antipsychotic widely used in the treatment of various psychiatric disorders, has been associated with several metabolic side effects, including the rare occurrence of Diabetes Insipidus [1]. Understanding and addressing this potential complication is crucial for clinicians managing patients on Risperidone therapy.

Risperidone exerts its antipsychotic effects primarily through dopamine and serotonin receptor blockade. However, its impact on metabolic parameters has raised concerns. Diabetes Insipidus is thought to be related to the drug's antagonistic effect on vasopressin receptors, specifically the V2 receptors in the renal collecting ducts. This interference can lead to impaired water reabsorption, resulting in the characteristic symptoms of polyuria and polydipsia.

In Miss M's case, the temporal relationship between her recent switch to risperidone and the onset of polyuria, polydipsia, and extreme thirst raises suspicions of Risperidone-induced Diabetes Insipidus. Clinicians should be vigilant for such symptoms, especially following changes in antipsychotic medications, to promptly identify and address potential adverse effects.

Laboratory examination revealing electrolyte imbalances, such as low sodium and potassium levels, alongside elevated serum osmolality, supports the suspicion of diabetes insipidus. However, it's essential to rule out other potential causes, and collaboration with an endocrinologist is crucial for a comprehensive evaluation.

In Risperidone-induced Diabetes Insipidus, management strategies may involve discontinuation or dose reduction of Risperidone and consideration of alternative antipsychotic medications with a lower risk of metabolic side effects. Hydration and electrolyte balance should be closely monitored during this transition.

The occurrence of Diabetes Insipidus should be weighed against the overall benefits of Risperidone in managing psychiatric symptoms. Clinicians must perform a careful risk-benefit analysis, considering the patient's psychiatric condition, treatment response, and potential alternative medications. Alternative medication like Olanzapine in large doses has been shown to cause transient Diabetes Insipidus [2].

Patients on Risperidone therapy should be educated about the potential side effects, including Diabetes Insipidus, and instructed to report any unusual symptoms promptly. Regular monitoring of metabolic parameters, including serum sodium and osmolality, is essential during treatment.

CONCLUSION

Risperidone-induced diabetes insipidus is a rare but important consideration in the management of psychiatric patients. Clinicians should maintain a high index of suspicion for this adverse effect, especially in the context of new-onset polyuria and polydipsia. Collaborative care involving psychiatrists and endocrinologists is essential for accurate diagnosis, appropriate management, and ensuring the patient's overall well-being. This discussion emphasizes the need for ongoing research and caution in monitoring the metabolic effects of antipsychotic medications to improve patient outcomes.

CONFLICTS OF INTEREST

No conflicts of interest.

REFERENCES

1. Ryu, H. Y., Lee, M. Y., Lee, Y., Koh, J. H., Kim, M.-J., Shin, Y. G., & Chung, C. H. (2005). A Case of Drug-Induced Nephrogenic Diabetes Insipidus and Hyperprolactinemia in Schizophrenia Simultaneously. Journal of Korean Society of Endocrinology, 20(4), 407-412. https://doi.org/10.3803/jkes.2005.20.4.407
2. Koçer, E., Alçelik, A., & Canan, F. (2011). Olanzapine Intoxication-Related Transient Diabetes Insipidus. Case Reports in Psychiatry, 842-843. https://doi.org/10.3109/0886022X.2011.599094