AUCTORES
Globalize your Research

Journal of Clinical Case Reports and Studies

Vaishnavi Vi *

Open Access

Case Report

Case Report on Rauwolfia Induced Parkinsonismma

Vaishnavi Vi[1*], Khadeeja Nzamudeen[1], Bincy Babu[2]

[1]Pharm D Intern, Department of Pharmacy Practice, Ezhuthachan College of Pharmaceutical Sciences, Marayamuttom, Neyyattinkara, Thiruvananthapuram.

[2]Assistant Professor, Department of Pharmacy Practice, Ezhuthachan College of Pharmaceutical Sciences, Marayamuttom, Neyyattinkara, Thiruvananthapuram

***Corresponding Author:** Vaishnavi Vi, Pharm D Intern, Department of Pharmacy Practice, Ezhuthachan College of Pharmaceutical Sciences, Marayamuttom, Neyyattinkara, Thiruvananthapuram.

Received date: July 11, 2022; **Accepted date:** September 23, 2022; **Published date:** November 26, 2022

Citation: Vaishnavi Vi, Khadeeja Nzamudeen, Bincy Babu. (2022). Case Report on Rauwolfia Induced Parkinsonismma. *Journal of Clinical Case Reports and Studies* 3(9); DOI: 10.31579/2690-8808/137

Abstract

Rauwolfia serpentina is a safe and effective treatment for hypertension. The objective of this case report is to enhance awareness for medical practitioners concerning Rauwolfia induced Parkinsonism, because recognition and appropriate management can enable proper treatment and prevent serious adverse outcomes. We report a patient, who is a known case of Systemic hypertension10 years ago and was taking 5 drops of Rauwolfia syrup, this caused the patient to suffer with rigidity and after discontinuation of Rauwolfia syrup, and full recovery was observed. The appraisal of the ADR reported, in this case, was done by applying the Naranjo probability scale of adverse drug reaction (ADR). For this patient, the Naranjo probability score of 6 was reported.

Key Words: rauwolfia serpentine; parkinsonism; naranjo probability scale; rigidity

Introduction

The medicinal plant Rauwolfia belongs to milkweed family. It is a substance that is frequently utilised in Asian medicine, notably the Indian traditional Ayurvedic system of medicine. Although reserpine, rescinnamine, and deserpidine are the main psychoactive ingredients, its active ingredients are alkaloids and about 50 alkaloids were identified. It is manly indicated to treat hypertension and also exerts a strong antagonistic effect on dopamine by preventing the storage of monoamines in vesicles, which ultimately causes the monoamine oxidase enzyme to degrade these neurotransmitters more quickly. So reduced levels of dopamine cause the neurodegenerative condition known as Parkinsonism. Rauwolfia appears to be a safe and effective treatment for hypertension when used in appropriate low doses. An equivalent dose of pure Rauwolfia alkaloids, also known as alseroxylon extract or pure reserpine, can also be used to treat hypertension.

Case Presentation

A 53-year-old woman was admitted to the super speciality hospital with the chief complaint of vertigo and vomiting. The spectator of the patient informed that she had dyslipidaemia since 2 months, coronary artery disease and systemic hypertension 10 years ago and was taking 5 drops of rauwolfia syrup since then as an antihypertensive through per oral route. The patient had no history of diabetes. There were symptoms of rigidity at the time of admission. The patient reported no previous allergies. At the time of admission the patient was conscious and oriented to place and time, and the vital signs were noted down (B.P 130/80 mmHg, Respiratory Rate: 18 b/min, Heart Rate: 72 b/min, CVS: S1 S2 + ve P/A-soft/non-tender, SPO2: 98 % and Temperature: 98.6ºF. Routine biochemical investigation revealed the following: Hb: 12.5 g/dl, Platelets: 269000 /µl, ESR: 28 mm/hr, Urea: 10 mg/dL, S.Cr: 0.5 mg/dL, Na: 129 mEq/L, K: 3.6 mEq/L, Total cholesterol: 155 mg/dl and High sensitive troponin I: 4.50 pg/ml. The electrocardiogram revealed sinus tachycardia. Provisionally, the complaints of the patient were ruled out as peripheral vertigo by the physician. For the management of the illness, on the very first day of admission, she was prescribed Inj. Pantocid (Pantoprazole) 40 mg (B.D), T. Stemetil MD (Prochlorperacin) 5mg (T.D.S) and T. Stugeron (Cinnarizine) 25 mg (T.D.S). The general condition of the patient was slightly better after the first day of treatment. On the second day, the same treatment was followed and T. Natrise (Tolvaptan) 15 mg (O.D) was added. And on the third day the same treatment was followed and T. Parkitidin (Amantadine) 100 mg (O.D) and T. Rasalect (Rasagiline) 0.5 mg (O.D) was added. The same treatment was given to the patient for the following days and the patient was symptomatically better. On day 10 of the treatment, the route of administration of tramadol 100 mg (O.D-IV) was changed to oral route

and the patient was discharged from the hospital with a prescription of Tab. Tramadol 100 mg (O.D-P/ Oral) for the first week and then reduced the strength to 50 mg (O.D-P/Oral) for the second week. After taking Syrup Rauwolfia 5 drops in for 10 years, the family members of the patient noticed slurred rigidity and tremor of the hands and head at rest and slow movement of the body. MRI reports were normal. Thus, rauwolfia (riserpine)-related tremor was proposed as the impression and the Syrup Rauwolfia was then discontinued. After looking at the signs and symptoms of the patient and age being the most important factor, rauwolfia (riserpine) -induced Parkinsonism was confirmed. In conformance with the signs and symptoms, anti-parkinsonism therapy was initiated. The general condition of the patient remained stable 2 week after the treatment and the quality of life was restored to normal thereafter. The appraisal of the ADR reported, in this case, was done by applying the Naranjo probability scale of adverse drug reaction (ADR). For this patient, the Naranjo probability score of 6 was reported.

Discussion

Reserpine is one of the major alkaloids of the plant. The reserpine content has been found to be highest in the root and lower in the stems and leaves. Commission E approved the medicinal shrub Rauwolfia in the treatment of insomnia and hypertension. It consists of primary psychoactive components like reserpine, rescinnamine and deserpidine. Reserpine is widely distributed throughout the body to the brain liver, spleen, kidney, and adipose tissue and also widely distributed to red blood cells and peripheral neurons. Reserpine binds to the storage vesicles of dopamine and norepinephrine. Specifically, it irreversibly blocks vesicular monoamine transporter-2 in the adrenergic neurotransmission pathway. It results in the blockage of uptake of serotonin, norepinephrine and dopamine into presynaptic storage vesicles and also it ultimately leading to greater degradation of this neurotransmitter by monoamine oxidase enzyme. So decreased level of dopamine result in the slowly progressive neurodegenerative disease called Parkinsonism. It involves primarily degeneration of certain nerve cells in deep parts of brain called the basal ganglia and in particular a loss of nerve cells in part of brainstem called the substantia niagra. Dopamine, a neurochemical messenger produced by these cells, helps to initiate a circuit of communications that coordinates regular movement. Parkinson disease characterized by rigidity, resting tremor, kinesis, akathisia, pill rolling tremors, loss of postural reflexes and instable posture. Adverse side effects of reserpine include lethargy, sedation, psychiatric depression, hypotension, nausea, vomiting, abdominal cramping, gastric ulceration, nightmares, bradycardia, angina-like symptoms, bronchospasm, skin rash, itching, galactorrhea, breast enlargement, sexual dysfunction, and withdrawal psychosis. After several months of use, mental depression can occur and may persist. With extremely large doses, Parkinson-like symptoms, extrapyramidal reactions, and convulsions can occur.

Conclusion

In conclusion, primary goal of this case report is to increase the awareness of rauwolfia as a potential drug to develop Parkinsonism. This case reveals the need for further researches to establish its adverse effects.

Acknowledgements

We obtained the patient's informed consent before writing this case report.

Declaration of Patient Consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient has given her consent for her images and other clinical information to be reported in the journal. The patient understands that her name and initials will not be published and due efforts will be made to conceal her identity, but anonymity cannot be guaranteed.

Financial Support and Sponsorship: Nil.

Conflicts of Interest

There are no conflicts of interest.

Reference

1. Bocks JH, Norris DO. (2016). Sources for Forensic Plant Science Evidence. In: Forensic Plant Science. Elsevier. 35-50.
2. Cheung M, Parmar M. (2022). Reserpine. In: StatPearls [Internet]. StatPearls Publishing
3. Jones DN, Raghanti MA. (2021). The role of monoamine oxidase enzymes in the pathophysiology of neurological disorders. J Chem Neuroanat.
4. Goel R, Chaudhary R. Effect of daidzein on Parkinson disease induced by reserpine in rats.
5. Leão AH, Meurer YS, da Silva AF, Medeiros AM, Campêlo CL, Abílio VC, Engelberth RC, Cavalcante JS, Izídio GS, Ribeiro AM, Silva RH. (2017). Spontaneously Hypertensive Rats (SHR) Are Resistant to a Reserpine-Induced Progressive Model of Parkinson's Disease: Differences in Motor Behavior, Tyrosine Hydroxylase and α-Synuclein Expression. Front Aging Neurosci. 9:78.
6. Siddiqui M, Bhatt H, Judd EK, Oparil S, Calhoun DA. (2020). Reserpine substantially lowers blood pressure in patients with refractory hypertension: A proof-of-concept study. Am J Hypertens. 33(8):741-747.

DOI: 10.31579/2690-8808/137