



Steroid Induced Hypokalemia - A Case Report

Roshni P.R*, Sai Keerthana P.C, Krishna Priya Raj

Amrita School of Pharmacy, AIMS Health Science Campus, Amrita Vishwa Vidyapeetam University, Kerala, India.

*Corresponding author's E-mail: roshnipr@aims.amrita.edu

Received: 16-08-2016; Revised: 25-11-2016; Accepted: 13-12-2016.

ABSTRACT

Prednisolone (Wysolone) is steroid. Prednisolone comes under Corticosteroid class of drug with highly Glucocorticoid activity and low Mineralocorticoid property. This property makes it useful for the treatment of different types of Inflammatory as well as Auto-Immune conditions. Prednisolone prevents inflammation by limiting the rate of protein synthesis, Suppressing migration of PMN, Fibroblast and also reversing the Capillary Permeability. Herein we are presenting a Case Report of Prednisolone induced Hypokalemia.

Keywords: Prednisolone, Hypokalemia, Inflammation, Steroid.

INTRODUCTION

Prednisolone (wysolone) is steroid. Prednisolone has mainly Glucocorticoid activity and very low Mineralo corticoid activity, thus making it useful for the treatment of inflammatory and Auto-Immune conditions¹. The main adverse effects include Hypokalemia, Osteoporosis, Weight gain, Diabetes mellitus, Glaucoma. We present a case of Hypokalemia in a rheumatoid patient after starting Injection Methyl prednisolone and resolved after its withdrawal.

CASE HISTORY

A 46 year-old women recently diagnosed with Rheumatoid Arthritis was referred to the hospital for Evaluation and Treatment. She had complains of Joint pain, Weakness, Tiredness, and Numbness of legs and Arms. Her past medication history includes Prednisolone 40mg (OD). On examination she appeared Restless and all her vitals were under normal limits. On laboratory investigation, which showed that Sr. Urea, Sr. Creatinine, Calcium, Po_4^{2-} , AST, ALT, ALP (Trans aminases) and Creatine Kinase was normal. Sr. Potassium level was found to be 4.5 meq/L (Normal Value 3.5 to 5.3meq/l), sodium 142 mEq/L (Normal Value 135 to 152meq/l), HbA1c 6.1% (4.6-6.2), ESR- 60m, m/hr, CRP 140 (<1) RA positive. The patient was started on Inj methyl prednisolone 40mg OD, Tab. Methotrexate 10mg once a week, Tab. Folic acid 5mg alternate days. 3 days later her Sr. Potassium level was found to be 2.5 meq/L, with Na^+ , Urea and Creatinine being normal. The Creatine Kinase was found to be 495 IU/L (Normal Value 40 to 190). During that time her GRBS was 286 mg/dl. ECG showed no significant abnormalities. The patient showed improvement within hours following correction of the Potassium via Intravenous Potassium administration. Then her potassium level came to normal her symptoms

improved and she was discharged with methotrexate 10mg once a week and folic acid 5mg on alternative days.

DISCUSSION

Hypokalemia are frequent in patients treated with Steroid (prednisolone). There are very few cases reporting the association between Prednisolone therapy and Hypokalemia. Our study demonstrated similar findings as that of a case report published in Hormones 2011, Hypokalemia associated Paralysis after administration of Intravenous Methyl prednisolone in a patient with Graves thyrotoxicosis and Ophthalmopathy²⁻³. Naranjo diverse drug reaction probability scale was applied to quantify the degree of association between Prednisolone and Hypokalemia and it was found to be 8 (Probable). Hypokalemia occurs due to glucocorticoid induced kaliuresis^{4,5}.

CONCLUSION

In conclusion, Glucocorticoids are relatively safer medication. Hypokalemia is infrequently encountered side effect of which Physicians as well as Clinical Pharmacist should be aware while treating patients. Hypokalemic paralysis and Cardiac abnormalities can occur due to Hypokalemia. Hence Early diagnosis allows administration of Potassium supplements and helps in resolution of symptoms.

REFERENCES

1. Liu Z, Braverman LE, Malabanan A, Thyrotoxic periodic paralysis in a Hispanic man after the administration of prednisone. *Endocr Pract*, 12, 2006, 427-431.
2. Wongraoprasert S, Buranasupkajorn P, Sridama V, Snaboon T, Thyrotoxic periodic paralysis induced by pulse methylprednisolone. *Intern Med*, 46, 2009, 1431-1433.
3. Arzel-H, McGoybc S, Sternbergabc D, Vicartabc S, Eymarda B, Fontaine B, Glucocorticoids may trigger attacks in several



- types of periodic paralysis. *Neuromuscular Disorders*, 19, 2009, 217-219.
4. Chan A, Shinde R, Chow CC, Cockram CS, Swaminathan R, Hyperinsulinaemia and Na⁺, K⁺-ATPase activity in thyrotoxic periodic paralysis. *Clin Endocrinol (Oxf)*, 41, 1994, 213-216.
5. Chan A, Shinde R, Chow CC, Cockram CS, Swaminathan R, In vivo and in vitro sodium pump activity in subjects with thyrotoxic periodic paralysis. *BMJ*, 303, 1991, 1096-1099.

Source of Support: Nil, **Conflict of Interest:** None.

