Int. J Med. Pharm. Res. (P-ISSN: 2958-3675 | E-ISSN: 2958-3683)
Available on: https://ijmpr.in/

International Journal
of Medical and Pharmaceutical Research

CASE REPORT **OPEN ACCESS**

BACLOFEN INDUCED ENCEPHALOPATHY – A Study of two cases with review of literature

S. S. Singh[1], Rajbarath[2], Supria Roy[3]

[1]Sr. Consultant, Dr. Ritika's Diagnostic Solutions ,Pvt Limited, Garacharama, Sri Vijayapuram, Andaman & Nicobar Islands, India.

[2]Consultant, Dr. Ritika's Diagnostic Solutions ,Pvt Limited, Garacharama, Sri Vijayapuram, Andaman & Nicobar Islands, India.

[3]Medical officer, Dr. Ritika's Diagnostic Solutions ,Pvt Limited, Garacharama, Sri Vijayapuram, Andaman & Nicobar Islands, India.

OPEN ACCESS

***Corresponding Author**
Dr. S.S. Singh
Sr. Consultant, Dr. Ritika's Diagnostic Solutions ,Pvt Limited, Garacharama, Sri Vijayapuram, Andaman & Nicobar Islands, India

Received: 02-04-2025
Accepted: 21-05-2025
Available online: 02-06-2025

A B S T R A C T

Baclofen ,a centrally acting muscle relaxant is used for the treatment of spasticity, muscle spasms and intractable hiccups. Its main route of excretion is urine , therefore the drug gets accumulated in patients with chronic kidney disease resulting in toxicity. We report two cases of chronic kidney disease who developed encephalopathy with baclofen and improved after stopping the drug, spontaneously in the first patient and after two sessions of dialysis in the second case.

Keywords: Baclofen, chronic kidney disease , encephalopathy ,dialysis

INTRODUCTION

Baclofen, which is a centrally acting Gamma Aminobutyric Acid (GABA) agonist, is primarily used for the treatment of spasticity in conditions such as Multiple sclerosis, Cerebral palsy and Spinal cord lesions to relieve symptoms of painful flexor spasms. It is also prescribed for the control of Intractable hiccups and the recommended dose is 10-20 mg three times a day, upto a maximum of 80 mg per day[1].Occasionaly,it is used as a "fun" drug by youngsters [5].Exceeding the dose to more than 200mg/day may cause severe toxicity like encephalopathy, respiratory depression, hypotension, hypothermia etc. The drug is mainly excreted through kidney (80-85 %) with a small percentage (15-20%) being metabolised by liver , requiring caution in patients with chronic kidney disease. Moreover the drug's lipophilic nature facilitates its passage through blood-brain barrier [3].We report two cases of Chronic kidney disease stage IV and stage V D, who developed encephalopathy after receiving 20 mg and 10 mg of baclofen respectively, which persisted for nearly 48 hours, recovered slowly, in the second case after dialysis.

Case Report -1

55 year old male patient , known case of Diabetes Mellitus, Hypertension since last 10 years and Diabetic Kidney disease since 3 years was admitted on 24/01/25 with complaints of hiccups on & off since last 01 month and continuous hiccups since one day prior to admission. The patient had a cerebrovascular accident 5 years back with left hemiplegia

due to infarct in right capsuloganglionic region and continued to have residual paralysis making him wheelchair bound. On examination except for intractable hiccups, mild pallor and grade III/VI powers in left upper and lower limbs, other findings were normal. The investigations showed that hemoglobin was 10.5 gm/dl, urea 53mg/dl, creatinine 3.07 mg/dl, Na 133 mEq/L, K 4.0 mEq/L and random blood sugar was 238 mg/dl. For persistent hiccups he was treated with Inj.Metoclopramide but even after two doses it did not subside, hence Tab. Baclofen was initiated in the dose of 10 mg three times a day. Although hiccups had subsided after the second dose of Baclofen but his level of consciousness started deteriorating around 8 hours after the second dose and the patient became comatose after 12 hours with GCS of 6/15. After ruling out all causes of metabolic encephalopathy presuming that Baclofen toxicity was responsible for deterioration of level of consciousness, the drug was withheld and the patient was managed with maintenance intravenous fluid and condom drainage for urinary incontinence, keeping a close watch on his respiration to detect any respiratory compromise and aspiration. The patient started regaining consciousness after 24 hours and became fully conscious after 36 hours and was discharged after that in stable condition without recurrence of hiccups.

Case Report - 2

74 year old male patient, known case of Diabetic Kidney Disease- stage V on maintenance hemodialysis twice a week since last nine months had presented to another hospital for complaints of hiccups since five days. The patient was thoroughly investigated to look for any mechanical cause for hiccups and after ruling out, he was prescribed Tab Baclofen 10 mg three times a day. The patient took Baclofen 10 mg at 9 PM and went to sleep after half an hour on 09/04/25.Next day morning at around 5.30 AM he was found to be unresponsive ,hence was taken to the nearby Community Health Centre where he was undergoing regular maintenance hemodialysis. On arrival his vitals were found to be stable, the GCS score was 6/15 with normal pupils and no neck stiffness .Presuming uremic encephalopathy as the cause for his condition, he was taken up for hemodialysis for 3 ½ hours without any improvement in his level of consciousness, hence was dialysed again for 3 ½ hours the next day. After the second dialysis his consciousness showed slight improvement, when the patient was shifted to our hospital on 11/04/25.

On arrival on 11/04/25 at 0130 hours, the patient was found to be in altered sensorium with GCS of 8/15, his blood pressure was 150/80 mm hg, pulse rate 84/min, respiratory rate 18/min with a SpO2 of 96% at room, there was no neck stiffness, no pooling of saliva in the throat and pupils were bilaterally equal and reacting to light. Urgent CT scan of brain was done to rule out the possibility of stroke, which turned out to be normal, so also were the biochemical parameters except for moderately elevated urea and creatinine. A diagnosis of Baclofen induced encephalopathy was made and since the patient had already received two sessions of hemodialysis on two consecutive days with the last session being just two hours before admission , it was decided to manage him conservatively with maintenance I.V.fluids. The patient started regaining consciousness at 3 AM on 12/04/25 and became fully conscious and partially oriented by 9AM.His condition improved further and was discharged at 6 PM on 12/04/25 in a fully conscious state , walking without support ,with the advice to continue maintenance hemodialysis and to avoid Baclofen in future.

Discussion

Despite documented cases of neurotoxicity in patients with renal dysfunction, Baclofen is being commonly prescribed for muscle rigidity, muscle spasms and hiccups. So far 50 cases of Baclofen toxicity have been reported in chronic kidney disease patients, mostly in dialysis dependent patients [4].Neurotoxicity has been reported in those patients taking 5-60 mg of Baclofen per day from as early as 2-3 days to a long as 16 weeks after starting the drug [3,4].Risk factors being advanced age, renal dysfunction, preexisting neurological disorders and high dose[3].Neurotoxic symptoms in Baclofen toxicity include sedation, drowsiness, encephalopathy, seizures, ataxia ,vertigo, hypotension, hypothermia and respiratory depression. Patients with renal failure usually present with altered sensorium ranging from drowsiness to deep coma [4].

Both our patients were suffering from chronic kidney disease and developed neurotoxicity approximately 8 hours following a cumulative doe of 20 mg in first case and with a single dose of 10 mg of baclofen in second case . The first case recovered spontaneously, the second case required two sessions of dialysis .Renal dysfunction and preexisting neurological disorder were the risk factors in first case ,whereas renal dysfunction on dialysis and old age were the risk factors in the second case.

Literature although mentions that caution should be taken in prescribing Baclofen in patients with renal dysfunction, it fails to mention the dose modification. Various studies have shown that even as small a dose as 5 mg can result in neurotoxicity in CKD patients [2,6]. Hemodialysis is the preferred mode of treatment in dialysis dependent cases even in patients on CAPD [6]. It helps by removal of the drug thereby accelerating recovery. We feel that the drug should be completely avoided in patients with renal dysfunction to avoid neurotoxicity which can occasionally become life threatening .

CONCLUSION

In patient with impaired renal function use of Baclofen can result in serious life threatening neurotoxicity. Baclofen toxicity should be suspected in a patient of renal failure who presents with altered sensorium after taking the drug. Hemodialysis is helpful in removing the drug and accelerating recovery. Physicians must be aware of the risk of using Baclofen in patients with impaired renal function and the drug should be completely avoided even in patients with mild renal dysfunction-acute or chronic.

REFERENCES

1. Ming-Ju Hsieh, Shyr-Chyr Chen, Te-I Wang, Cheng-Churg Furg, Tun-Jun Sai.
   Treating Baclofen overdose by hemodialysis.
   Am J Emergency Medicine.2012 Oct;30(8): 1654-7
2. Alok Kumar, Drchhom Khrime, Nitin Bansal, Saurabh Agarwal, Utkarsh Sharma
   Baclofen induced Encephalopathy in patients with Chronic Kidney Disease.
   Journal of clinical and diagnostic Research ,2020 Sept,Vol -14 (9);OR 01-OR 02
3. Amr-El-Husseini ,Alberto Sabucedo,Jorge Lamarte,Craig Courville,Alpredo Peguero.
   Baclofen toxicity in patients with advanced nephropathy: proposal for new labeling.
   Am J Nephrol,2011;34(6):491-5
4. Prem P Varma, Geet Bajpai
   Baclofen induced Neurotoxicity in chronic kidney disease: Is there a safe dose?
   Indian J Nephrol ,2022 Jan 5;32(1):87-89.
5. Weisshaar G F, Hoemberg M, Bender K et al. Baclofen intoxication : A “fun drug” causing deep coma and non convulsive status epilepticus- a case report and review of literature . Eur J Pediatr :2012; 171:1541-7
6. Choo YM, Kim GB, Choi JY et al. Severe respiratory depression by low dose baclofen in the treatment of chronic hiccups in a patient undergoing CAPD. Nephron 2000 ; 86: 546-7