

Neurotoxic effects of a well known antibiotic!

Mariam Sajjad, Navaira Shoaib

Dear Editor, Cefepime is a fourth-generation cephalosporin with broad-spectrum antimicrobial activity covering a wide range of both gram-negative and gram positive organisms. It is administered parenterally to treat pneumonia, urinary tract infections as well as skin and soft tissue infections. It is generally well tolerated with the most commonly reported side effects being diarrhoea and rash. However, cefepime induced neurotoxicity is a rare but life-threatening adverse effect that, despite being described in literature, is often overlooked.

According to the literature, about 15% of ICU patients managed with cefepime may develop neurological symptoms, including altered consciousness, aphasia, myoclonus, encephalopathy, seizures and coma. EEG abnormalities such as non-convulsive status epilepticus, myoclonic status epilepticus, triphasic waves and focal sharp waves have also been reported. Risk factors for cefepime neurotoxicity include renal function impairment, overdosing, previous brain injury and elevated serum cefepime concentrations.¹

A case study published in 2021 reported a rare case of cefepime induced neurotoxicity where an elderly female suffering from chronic renal transplant rejection was given cefepime. Despite renal dosage adjustment, the patient developed neurotoxicity and presented with acute delirium, inability to tolerate oral intake and non-convulsive status epilepticus on EEG. Discontinuation of cefepime resulted in improvement of symptoms.² Another case series published in 2017 reported cefepime induced neurotoxicity in 3 patients, one of whom had normal kidney function. These patients presented with asynchronous myoclonus and expressive aphasia.³

Considering the common use of cefepime in hospital settings, it is very important to heed the possible

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Final Year MBBS Student, Dow University of Health Sciences, Karachi, Pakistan.

Correspondence: Mariam Sajjad. Email: mariamsajjad18@gmail.com

ORCID ID. 0000-0001-8421-1443

neurological adverse effects of this antibiotic which can be potentially fatal. Cefepime should be used with caution especially in individuals with preexisting renal impairment. Fortunately, cefepime neurotoxicity is reversible and usually resolves with discontinuation of the drug. In a few cases, dialysis may be needed to hasten the elimination of the drug.⁴ Anticonvulsants may be needed if patient presents with seizures or non-convulsive status epilepticus.⁵ Since treatment is simple and recovery rates are good, prompt recognition is crucial. Especially in ICU patients, recognition of cefepime induced neurotoxicity is challenging as it may present with neurological symptoms that are common in critically ill patients. Therefore, ICU patients receiving cefepime should be closely monitored. It is of vital importance to raise awareness regarding the neurotoxic effects of cefepime to facilitate early recognition which will help reduce morbidity and mortality associated with this drug.

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