Encephalopathy in the Setting of Cefepime Use—Incidence and the Complexities in Assessing Etiology

Nathasha N. Pettit, PharmD | Zhe Han, PharmD | Jennifer Pisano, MD

UCanada Medicine

Abstract

Background: Cefepime-induced encephalopathy (CIE), while rare, has been reported in patients receiving cefepime for treatment of suspected infections. We sought to assess the incidence of CIE, identify potential risk factors, and evaluate the etiologies for encephalopathy and resolution of symptoms.

Methods: We conducted a retrospective analysis of medical records from July 1, 2016, to June 30, 2017, at an academic tertiary care hospital. The study population included patients who received cefepime for treatment of infections. We assessed the incidence of CIE, characterized the etiologies of encephalopathy, and evaluated the outcomes of symptoms.

Results: Of the 4,446 encounters involving cefepime use, 5 patients (0.11%) were suspected to have CIE. The most common etiologies were pseudomonal infection (3 patients), fever (2 patients), and unknown source (3 patients). The etiologies of encephalopathy were diverse, including pseudomonal infection, fever, leukocytosis, and unknown source.

Conclusions: Our study highlights the complexities in assessing the etiologies of encephalopathy and the outcomes of symptoms. Further research is needed to better understand the risk factors and appropriate management of encephalopathy associated with cefepime use.

Methods

Study Design

Retrospective, observational, single-center study

Study Population

Adult patients ≥18 years who received cefepime and had a documentation of encephalopathy on the medical record

Results

5/10/2017 Encephalopathy was first noted in 4 of 5 patients. The remaining patient had pseudomonal infection with fever and leukocytosis.

Results Table 1: Patient Characteristics (N=18)

Baseline Characteristics

Gender, Male, n (%) 6 (33)
Age (median) 63.5
ICU Admission 9 (50)
General Medicine 9 (50)
Neurology/Neurosurgery 3 (17)
Respiratory/Intensive Care

Diagnosis

Sepsis 1 (5)
Pneumonia 6 (33)
Febrile Neutropenia 3 (17)
Pseudomonal infection 4 (22)
Intra-abdominal infection 1 (5.5)
Fever, leukocytosis, unknown source 1 (5.5)

Baseline Characteristics

Table 2: Modified Anti-Pseudomonal Antibiotic Therapy

Method

Inappropriate therapy discontinued

Results

3.3 (1–5)

Number of Patients with Confirmed Alternative Etiology 7

Number of Patients with Unconfirmed Etiology 8

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Number of Patients with Confirmed Alternative Etiology 7

Number of Patients with Unconfirmed Etiology 8

Conclusion

After reviewing patients who experienced encephalopathy while receiving cefepime, we found that the incidence of CIE in our analysis was 0.07%. Six patients (33.3%) received alternative antibiotics that were more toxic or inappropriate based on culture data.

Clinical implications

Clinicians should be mindful of the low incidence of CIE and consider other potential etiologies when assessing changes in mental status or other signs/symptoms of encephalopathy.

Disclosures

The authors of this presentation have no financial or personal relationships with commercial entities that may have a direct or indirect interest in the subject matter of this presentation.

References