

# Suspected Ceftazidime induced encephalopathy

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# Objective

To report a case of ceftazidime-induced encephalopathy. The occurrence of this adverse drug reaction is rare.

## Case summary

An 85-year-old female with hypertensive cardiovascular disease, dyslipidemia, and uremia under hemodialysis (twice a week) was admitted. Patient suffered from coronary heart disease before admission and being maintained hemodialysis on 19 Dec, 2017. During hospitalization, Augmentin (amoxicillin sodium 1000mg +clavulanate 200mg) 1.2gm once daily was initiated due to suspected infection on 24 Dec, 2017. After consulting the infection specialist for better infectious control, he recommended ceftazidime 2gm once daily instead of Augmentin on 26 Dec, 2017. Consequently, the patient presented inability to stand and to repeat what other people said, and her left limb was involuntarily shaking on 29 Dec, 2017. Hyperammonemia and hyperureaemia could be ruled out for the patient was not noted to have liver disease or regular hemodialysis. The physician suspected that the cause might be stroke or drug-related encephalopathy (Table 1), followed by arrangement of MRI and discontinuation of ceftazidime on 31 Dec, 2017. The patient still showed confusion and delirium, as a result, the nephrologist set up extra hemodialysis for toxin removal on 1 Jan, 2018. Two days later, the patient returned to normal on 3 Jan, 2018. Magnetic resonance imaging (MRI) report indicated that the infarction was obsolete(Figure 1), therefore, the neurologist excluded the possibility of stroke on 5 Jan, 2018. The assessment was 7 points by Naranjo Score(Table 2) and the ceftazidime-related encephalopathy was highly suspected after the overall assessment. Eventually, the patient was discharged on 16 Jan, 2018.

### Discussion

Ceftazidime is a third-generation Cephalosporin antibiotic that is commonly used in hospitals to treat pneumonia and urinary tract infection due to its broad spectrum of antibacterial activity. In this case, the dosage and frequency of ceftazidime did not address overdose. The neuro-related adverse reaction of ceftazidime was seizure (frequency not defined) instead of encephalopathy recorded in UpToDate database. However, we still could not exclude the possibility of encephalopathy because ceftazidime can penetrate the cerebrospinal fluid to impair the neurological function .

### Conclusion

We should pay more attention to the unusual behavior of patients and be cautious about the risk of ceftazidime-induced encephalopathy despite its rarity.

