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Consider ertapenem as culprit for central nervous system related adverse effects

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Background: Ertapenem use has been associated with Central Nervous System (CNS) related Adverse Effects (AEs) which include delirium, hallucinations, Altered Mental Status (AMS), stroke like symptoms and seizures. We described baseline characteristics and clinical features in 4 patients who developed CNS related AEs while receiving ertapenem during a period of six consecutive months in 2016.

Methods: We retrospectively reviewed patients on ertapenem and identified the ones who developed CNS related AEs attributed to ertapenem use from April till October 2016.

Results: Patient 1 (no renal impairment) was prescribed ertapenem for complicated intra-abdominal infection. He was noted to be drowsy on day 12 of ertapenem. Over the next 1-2 days he developed auditory hallucinations, jerky limb movements and fluctuating level of consciousness. He was switched to aztreonam. Patient 2 (no renal impairment) has developed confusion and hallucinations (visual, auditory and tactile) on day 25 of ertapenem which was being administered for tubo-ovarian abscess. Ertapenem was substituted to meropenem. Patient 3 (known end stage renal failure) developed seizure while on day 28 of ertapenem which was prescribed for bilateral renal abscess. No further episode of seizure was observed after ertapenem was switched to piperacillin/tazobactam. Patient 4 (known chronic kidney disease) was receiving ertapenem for complicated urinary tract infection. He was noted to be delirious on day 9 of ertapenem. Patient was switched to meropenem. In these patients, average age was 65 years. Male to female ratio was 1:1. None of the patients had previous history of seizure or CNS disorders. Two patients had normal renal functions. Toxic and metabolic causes were excluded. Computed Tomography (CT) of brain was normal in all cases. Dose was renally adjusted in 2 patients. Ertapenem Therapeutic Drug Monitoring (TDM) was not locally available. Symptom improvement was noted 3-4 days after ertapenem discontinuation in all patients.

Conclusions: Patients who developed these AEs can deteriorate rather unexpectedly which leads to extensive investigations and increase in health care cost. The cost can be minimized if physicians are acquainted to consider ertapenem as an offender agent. However appropriate workup to eliminate alternate etiology also needs to be considered at the same time as dictated by the clinical scenario. Ertapenem TDM might give information on CNS AEs in future studies.

Biography

Teck Kim Tie has completed his BPharm in 2007 from Curtin University of Technology in Western Australia. He has a Postgraduate Master's Degree in Infectious Diseases from the University of Western Australia in 2014. He is currently practicing as an Antimicrobial Stewardship Pharmacist at Changi General Hospital. His research interest is in infectious diseases especially related to *Clostridium difficile*.

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