

## **DOES CARBAPENEM CAUSE CONVULSIONS: A SERIES OF CASES**

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Carbapenem belongs to the group of  $\beta$ -lactam antibiotics, with broad-spectrum activity and is used in the treatment of severe infections. Meropenem and imipenem are two widely used carbapenem compounds, with neurotoxic side effects. The objective of this study was to investigate the incidence of convulsions in patients in the Intensive Care Unit (ICU), receiving carbapenem treatment.

All patients warded in a regional ICU and treated with either meropenem or imipenem during the period January 2005 to June 2006 were included in the study. Demographical data and particulars of drug treatment were obtained from the hospital records. The patients were carefully observed for manifestation of convulsions. History of other drugs administered, which are known to cause convulsions, evidence of cerebral insults and past history of convulsions were taken to exclude other likely causes of seizures. In addition, investigations were performed to assess levels of serum electrolytes, random blood sugar, blood gas, blood urea and serum creatinine to ensure that no other cause for convulsions existed.

Thirteen patients, 11 males and 2 females with a median age of 37 years (Range 2 months - 69 years) treated with meropenem and 5 patients, 4 males and one female, median age, 37 years (range 11 years - 51 years) treated with imipenem were studied. All received standard doses of the drug in accordance with body weight. The first convulsion was noted on the median 4<sup>th</sup> day (Range: 1 - 8 days) following the commencement of treatment with the drug. Of the 13 patients treated with meropenem, 4 developed convulsions. One had renal impairment with elevated levels of blood urea (24 mmol/l) and serum creatinine (604  $\mu$ mol/l). One had low serum potassium (2.9 mmol/l) at the development of convulsion and the other was suffering from meningitis. Two patients had a past history of convulsion and they did not develop convulsions. Of the 5 patients treated with imipenem, convulsions developed in 2 patients. One was a diagnosed patient with chronic renal failure and had a past history of convulsions. One had acute renal failure with multi organ failure and continued to have seizures even after stopping imipenem administration.

In the cases presented, convulsions were developed following the administration of carbapenem. Patients with renal impairment, electrolyte imbalance and meningeal inflammation are likely to be affected. A larger study is needed to detect the significance of predisposing factors.