Why Did the Patient not Show any Neurological Symptoms on the Day of the Higher Serum Concentration of Ceftriaxone?

Key words: encephalopathy, ceftriaxone, concentration

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To the Editor We read with interest an article entitled “Encephalopathy Induced by High Plasma and Cerebrospinal Fluid Ceftriaxone Concentration in a Hemodialysis Patient” by Suzuki S. et al. in the Internal Medicine Advanced publication 2019;25,1). The authors carefully described the clinical course of a patient who suffered from encephalopathy, possibly caused by ceftriaxone. The authors carefully deduced the causes of encephalopathy, most of which were highly inductive.

A previous pharmacokinetic study revealed lower serum concentrations of ceftriaxone among hemodialysis patients (2) in comparison to the concentration recorded in this patient (>100 μg/ml) (1). Additionally, the cerebrospinal concentration (10.2 μg/ml) of ceftriaxone in this encephalopathic patient was higher in comparison to meningitis patients (median 3.52 μg/ml), whose blood-brain barrier might be more permeable, allowing medicines to penetrate more easily from blood into the cerebrospinal fluid (3). Thus, high serum and cerebrospinal fluid concentrations might explain ceftriaxone’s pathogenicity.

However, these facts cannot clarify the definite cause of encephalopathy, because her symptoms and her serum concentration did not show a directly linear relationship (1). That is, she had no consciousness disturbance, despite the high concentration of ceftriaxone on day 9 after administration of this third-generation cephaorosporin. We would like to ask the authors why she did not show any neurological symptoms when the concentration of the drug was higher.

The authors state that they have no Conflict of Interest (COI).  

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References

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