Suspected Herpes Simplex Encephalitis with Low Copy Number DNA

Koko Kato¹ • Masahiro Kimura¹ • Shinichiro Morichi¹ • Gaku Yamanaka¹ • Yasuyo Kashiwagi¹ • Hisashi Kawashima¹

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To the Editor: Real-time Polymerase chain reaction (PCR) and nested PCR have been used for the diagnosis of herpes simplex encephalitis (HSE) because of their sensitivity and rapidity [1]. However, low copy numbers of herpes simplex virus (HSV) may be overlooked, because a sample with less than 100 copies of HSV is judged as negative by the assays of many laboratory companies [2]. In this study, we assayed HSV-DNA using real-time PCR in cerebrospinal fluid (CSF) obtained from patients with suspected infection of the central nervous system (CNS). We performed HSV-DNA quantification by real-time PCR using the LightCycler® system. If there is a machine, measurement is possible within several hours with less than 2000 yen per sample. Five samples were positive for HSV. Their copy numbers were less than 100 and the same samples showed negative results for HSV-PCR when analyzed by a commercial laboratory. All patients of these 5 samples were clinically diagnosed as having severe infections; pneumococcal meningitis, complex febrile seizure, influenza encephalopathy, aseptic meningitis and upper tract infection. Three patients had status epilepticus. Loss of consciousness was seen in 2 patients. Abnormal head MRI findings were displayed in 2 patients, and abnormal non-periodic lateralized epileptiform discharges were seen in the electroencephalogram of 1 patient.

Although HSV infection of the CNS might be associated with clinical status, this could not be concluded, because all positive patients had complications of serious CNS infections except HSE. Reactivation of HSV might result in low copy number HSE because all 5 patients had complications from severe infectious diseases.

Compliance with Ethical Standards

Conflict of Interest None.

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✉ Koko Kato
koko_deux61116@yahoo.co.jp

¹ Department of Pediatrics, Tokyo Medical University, 6-7-1 Nishishinjuku, Shinjuku-ku, Tokyo 160-0023, Japan