A post-transplantation patient in whom a specific interval was required until the blood concentration of fluconazole reached a steady state

Yasutaka Sakamoto[1,2], Hikaru Isono[2], Hirofumi Koike[1], Yuki Enoki[2], Kazuaki Taguchi[2], Maki Hagihara[3], Kenji Matsumoto[3], Hideaki Nakajima[3], Yukiko Sahashi[1], Kazuaki Matsumoto[2]

[1]Department of Pharmacy, Yokohama City University Hospital, [2]Division of Pharmacodynamics, Keio University Faculty of Pharmacy, [3]Department of Hematology and Clinical Immunology, Yokohama City University School of Medicine

[Introduction]

Fluconazole is anti-fungal agent widely used to prophylaxis and treatment. In the ECIL6 Guidelines, it is recommended that the dose of FLCZ for treatment should be established as ≥10 to 15 mg/mL, which is a trough level. We report a patient in whom a specific interval was required until the blood concentration of FLCZ reached a steady state.

[Case]

The patient was a 50-year-old male. To treat acute lymphocytic leukemia, remission induction and consolidation therapies were performed. After remission was achieved, umbilical cord blood transplantation was conducted. On Day 18, graft survival was confirmed. A blood culture test on Day 27 detected yeast-like fungus. Micafungin (MCFG) at 150 mg, used for empiric therapy, was switched to liposomal amphotericin B (L-AMB) at 3 mg/kg. On Day 36, renal hypofunction was noted, and L-AMB was switched to MCFG at 150 mg. On Day 65, there was a decrease in the β-D-glucan level from ≥600 to 375.2 pg/mL, and MCFG at 150 mg was switched to FLCZ at 200 mg. On Day 71, the trough level of FLCZ was 21.0 mg/mL, and its concentration 2 hours after administration was 24.4 mg/mL. The β-D-glucan level was 232.1 pg/mL. On Day 79, the trough and 2-hour levels of FLCZ were 30.6 and 32.1 mg/mL, respectively, and the β-D-glucan level was 167.6 pg/mL. On Day 85, the trough level of FLCZ was 38.4 mg/mL, and the β-D-glucan level was 161.4 pg/mL. Subsequently, blood culture was negative, and FLCZ administration was continued until Day 229. During the administration period, the creatinine clearance ranged from 33.0 to 45.9 mL/min.

[Discussion]

The half-life of FLCZ is approximately 30 hours. Its clearance depends on the renal function. In the present case, a target trough level was achieved in the early phase, but the blood concentration of FLCZ increased with the prolongation of the administration period. Therefore, the appearance of central nervous toxicity must be considered. In the future, it may be necessary to establish individualized, optimized FLCZ dosimetry in accordance with the renal function for the optimal use of FLCZ.