Basic Study on Marble–Burying Behavior as an Animal Model of Obsessive–Compulsive Disorder

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Abstract: In this study, we examined the characteristics of marble–burying behavior, which has been considered an animal model of obsessive–compulsive disorder (OCD). ICR male mice exhibit a marble–burying behavior in comparison to ddY and DBA/2 male mice. However, we did not observe any significant differences between the ICR male mice and the ICR female mice regarding the marble–burying behavior. In addition, selective serotonin reuptake inhibitor (SSRI), such as fluvoxamine and paroxetine, which has been used to treat human OCD symptoms, inhibited such marble–burying behavior without affecting the locomotor activity in ICR male mice. In contrast, milnacipran had no effect on the marble–burying behavior in ICR male mice. These findings suggest that fluvoxamine and paroxetine exhibit an anti-OCD activity in clinical use, and that the serotonergic neuronal system may also be involved in the marble–burying behavior in mice.

Key words: Marble–burying behavior, Obsessive–compulsive disorder, Fluvoxamine, Paroxetine, Milnacipran