

Low body weight at weaning in V1a vasopressin receptor knockout mice

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Three receptor subtypes are known for neurohypophyseal hormone, Arginine vasopressin (V1aR, V1bR, and V2R). We previously reported the decrease of litter size and the delayed labor in V1aR knockout (KO) mice. In order to further elucidate the mechanism of the decreased litter size in V1aR KO mice, we counted the number of implantation sites at embryonic day 5.5. Unexpectedly, there was no difference in the number of implantation sites between WT and V1aR KO mice. This observation suggests that the pups' number decreases after the implantation. We also measured the body weight of pregnant mothers and newborns. Both WT and V1aR KO mothers showed the similar weight gain during pregnancy. The body weight of newborns at the parturition also showed no difference between WT and V1aR KO mice. However, at 3 weeks old, when pups were weaned from their mothers, the body weights of V1aR KO litters were significantly lower than those of WT. These results suggest that the pups of the V1aR KO mice show growth disorder at the time of the transition from juvenile to adult. Therefore, V1aR should be requisite for the normal growth.